

AD-A047 655

RHODE ISLAND UNIV KINGSTON GRADUATE SCHOOL OF OCEANO--ETC F/G 13/10

R/V TRIDENT CRUISE SUMMARIES CY 1962 THROUGH CY 1971.(U)

NOV 77 E M WILLIAMS

N00014-76-C-0226

UNCLASSIFIED

URI/GSO-REF-77-4

NL

AD-A047655

3



12 B.S.  
**GRADUATE SCHOOL OF OCEANOGRAPHY**

**NARRAGANSETT MARINE LABORATORY**

**UNIVERSITY OF RHODE ISLAND**

AD A 047655

R/V TRIDENT CRUISE SUMMARIES

CY 1962 through CY 1971

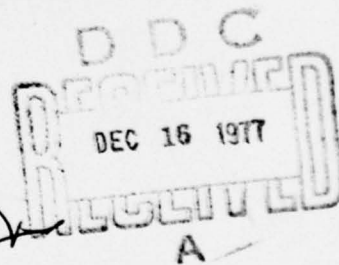
Technical Report

Ref. No. 77-4

by

Edwin McB. Williams

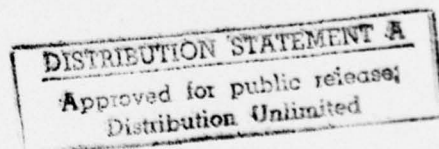
Sponsored by the Office of Naval Research  
Report under Contract N00014-76-C-0226  
(Project ONR-083-165)



AD No. \_\_\_\_\_  
DDC FILE COPY

KINGSTON, RHODE ISLAND

NOVEMBER 1977



Unclassified 11/77

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

(14) URI/GSO-REF-77-4

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER GSO/URI Technical Report, Ref.No. 77-4	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) R/V TRIDENT CRUISE SUMMARIES CY 1962 through CY 1971.	5. TYPE OF REPORT & PERIOD COVERED Cruise Summaries 1962 through 1971	6. PERFORMING ORG. REPORT NUMBER 9 Technical rept.
7. AUTHOR(s) Edwin McB. / Williams	8. CONTRACT OR GRANT NUMBER(s) 15 N00014-76-C-0226	
9. PERFORMING ORGANIZATION NAME AND ADDRESS Graduate School of Oceanography University of Rhode Island Kingston, R.I. 02881	10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS NR-083-165	
11. CONTROLLING OFFICE NAME AND ADDRESS Department of the Navy Office of Naval Research Code 480	12. REPORT DATE November 1977	13. NUMBER OF PAGES 12 248 P.
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office) N/A	15. SECURITY CLASS. (of this report) Unclassified	15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
16. DISTRIBUTION STATEMENT (of this Report)  Approved for Public Release: Distribution unlimited		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)  Approved for Public Release Distribution unlimited		
18. SUPPLEMENTARY NOTES  N/A		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number)  R/V TRIDENT CRUISE SUMMARIES CY 1962 through CY 1971		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) This report was prepared by the Data Archives group at GSO/URI. It is a summary of the operations of <sup>the</sup> our research vessel R/V TRIDENT for CY 1962 through CY1971. For each calender year a listing of cruises is given followed by an index chart. Cruises have been summarized by: cruise number, dates, days at sea, funding, and general area of operation. A <u>Program Description</u> and <u>Data Collected</u> are itemized. <u>Participants</u> and their affiliation on each cruise are listed. A Cruise Chart follows each Cruise Summary. ←		

DD FORM 1 JAN 73 1473

EDITION OF 1 NOV 65 IS OBSOLETE  
S/N 0102-014-6601Unclassified 11/77  
SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

406 099 23

Graduate School of Oceanography ✓  
University of Rhode Island  
Kingston, Rhode Island

Reproduction of the material contained in this report in  
whole or in part is permitted for any purpose of the  
United States Government

Distribution of this document is unlimited

R/V TRIDENT CRUISE SUMMARIES  
CY 1962 through CY 1971

Technical Report ✓  
Ref. No. 77-4

by  
Edwin McB. Williams

Approved for Distribution

John A. Krauss

Sponsored by the Office of Naval Research  
Report under Contract N00014-76-C-0226 ✓  
(Project ONR-083-165)

November 1977

See 1473

### DESCRIPTION

This report is a summary of the operation of our research vessel R/V TRIDENT for the calendar years 1962 through 1971. Used in conjunction with the Graduate School of Oceanography, University of Rhode Island Technical Report, Ref. No. 76-2, it completes the cruise reporting of all R/V TRIDENT cruises undertaken from 1962 through 1975.

For each calendar year a listing of cruises is given followed by an Index Chart. Cruises have been summarized by: cruise number, dates, days at sea, funding, and general area of operation. In addition a brief Program Description and Data Collected are itemized. Scientific personnel, their titles and affiliations are listed as Participants. An individual Cruise Chart follows each cruise summary.

DATE	TIME	✓
NO. OF	PER	□
UNIFORMS		□
JOURNAL TIME		
BY		
EXHIBITION/AVAILABILITY NOTES		
DATE	AVAIL.	BY SPECIAL
A		

## ABBREVIATIONS

### Funding

NIH	National Institute of Health
NSF	National Science Foundation
ONR	Office of Naval Research

### Program Description and Data Collected

CSTD	Conductivity-Salinity-Temperature-Depth
CTD	Conductivity-Temperature-Depth
GEK	Geomagnetic Electrokinetograph
JOIDES	Joint Oceanographic Institutions Deep Earth Sampling
MBT	Mechanical Bathythermograph
n.m.	Nautical Miles
O <sub>2</sub>	Oxygen
Ocean Acre	31°30' - 32°30' N, 63°30' - 64°30' W
STD	Salinity-Temperature-Depth
XBT	Expendable Bathythermograph

### Participants/Affiliation

BGRM	Bureau of Geologic Research and Mines
LDGO	Lamont-Doherty Geological Observatory
LGO	Lamont Geological Observatory
MIT	Massachusetts Institute of Technology
NAVOCEANO	Naval Oceanographic Office
NMWQL	National Marine Water Quality Laboratory (Kingston, R. I.)
NOIC	National Oceanographic Instrumentation Center
NUSL	(See USN-USL)
OE/URI	Ocean Engineering/URI
SIO	Scripps Institution of Oceanography
SUNY	State University of New York
UNH	University of New Hampshire
USBSF&W	U.S. Bureau of Sport Fisheries & Wildlife
USGS	U.S. Geological Survey
USN-USL	U.S. Navy-Underwater Sound Laboratory (Newport, R. I.)
WHOI	Woods Hole Oceanographic Institution
Yale	Yale University

Others self explanatory

## Table of Contents

### Item

1. Description
2. Abbreviations
3. CY 1962 Cruise Listing
4. CY 1962 Cruise Index Chart
5. CY 1962 Cruise Summaries with Cruise Charts
6. Items 3-5 same for CY 1963 through CY 1971  
respectively

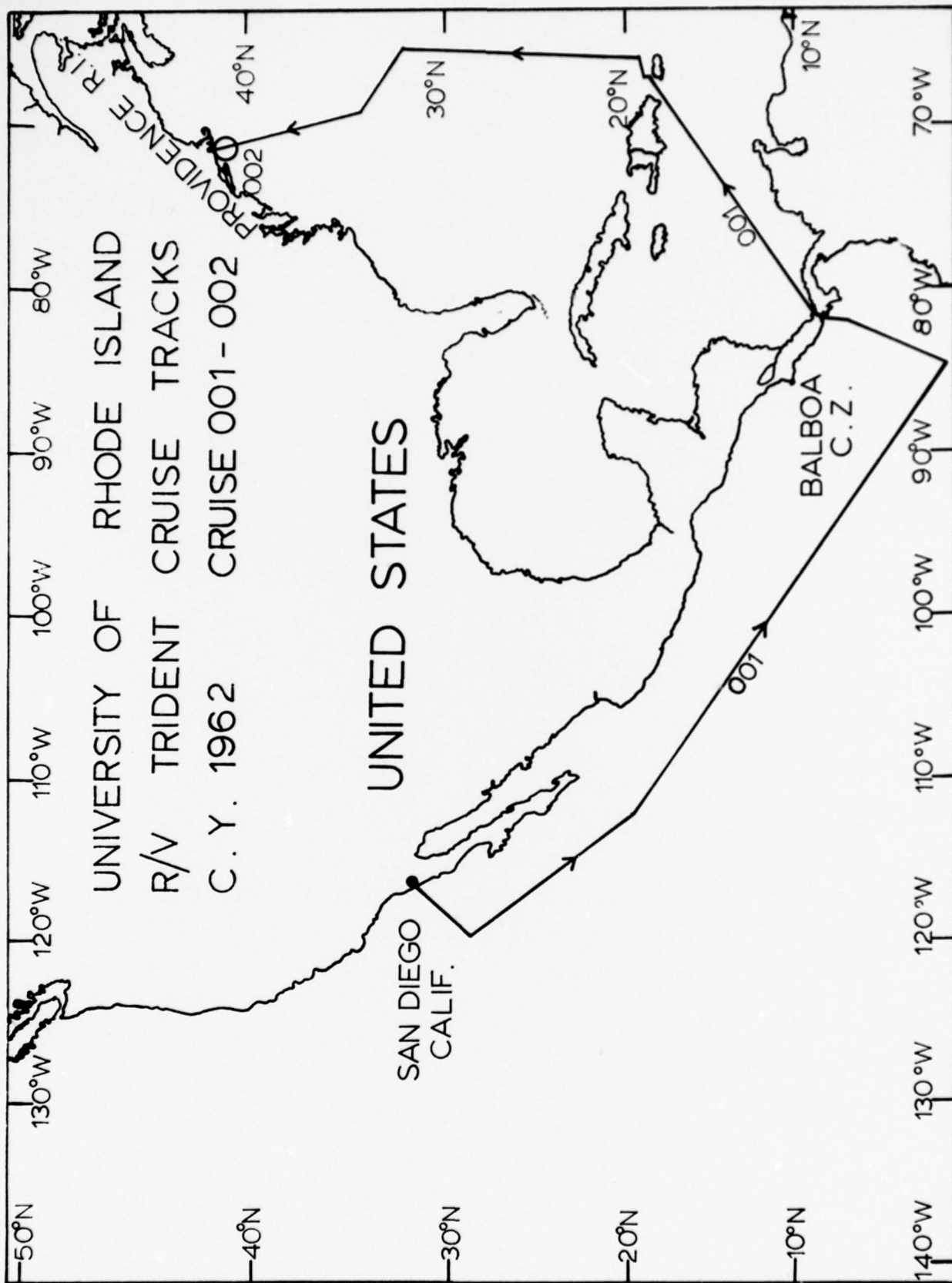
### Acknowledgments

This report was compiled and reviewed with the generous assistance of Virginia Bowerman and Tran Quang. Mr. Quang contributed a good deal of time and planning in making up the yearly summary and individual cruise track charts.

R/V TRIDENT Cruises - CY 1962

Cruise No.	Dates	Days at Sea	Area of Operation	Chief Scientist/ Affiliation*
001	15 Sept. - 16 Oct.	29	East Pacific, Panama Canal, Caribbean, SW Atlantic	Sieburth
002	16-20 Nov.	6	NW Atlantic	McMaster

\*All GS0/URI



Cruise No.: TR-001

Dates: 15 September - 16 October 1962      Area of Operation: Pacific Ocean,

Days at sea: 29

Panama Canal,  
Caribbean Sea

Funding: ONR, NSF, NIH

#### Program Description

The primary objectives of this cruise were:

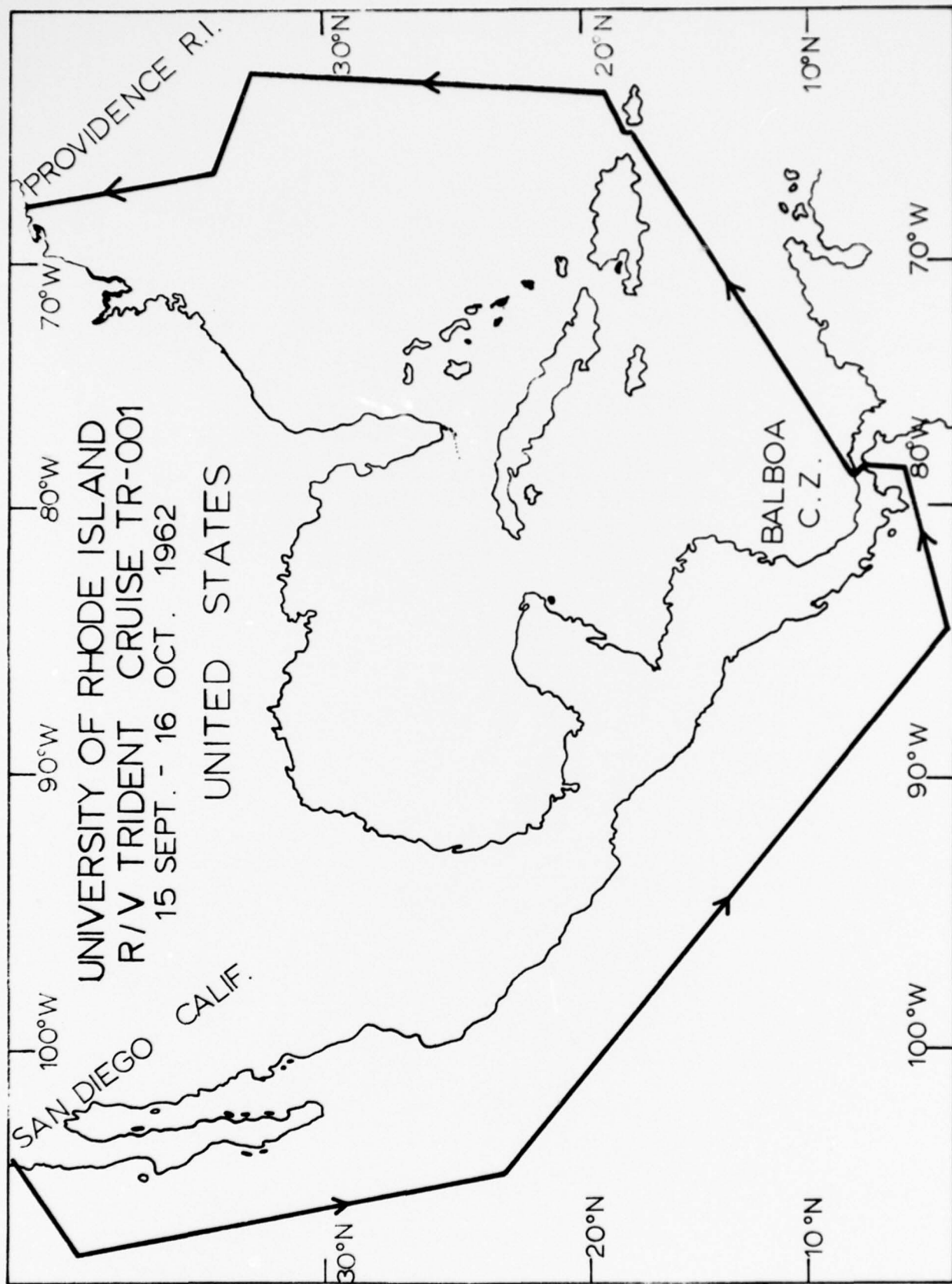
- a) to deliver the URI/GSO research vessel R/V TRIDENT from San Diego, California, to Rhode Island
- b) to perform bacteriological studies
- c) to study sargassum weed

#### Data Collected

- 1) 45 bacteriological stations were completed
- 2) sargassum weed was collected between stations

#### Participants

Dr. John McN. Sieburth	Chief Scientist	U.R.I.
Dr. John T. Conover	Assistant Professor	U.R.I.
Mr. Merrill E. Bracci	Laboratory Technician	U.R.I.
Mr. Stanley B. Chenoweth	Graduate Student	U.R.I.
Mr. James F. Frey	Graduate Student	U.R.I.



Cruise No.: TR-002

Dates: 12 - 20 November 1962

Area of Operation: Northwest  
Atlantic Ocean

Days at sea: 6

Funding: ONR

#### Program Description

The primary objectives of this cruise were:

- a) to perform equipment tests
- b) to obtain geological samples in Block Island Sound

#### Data Collected

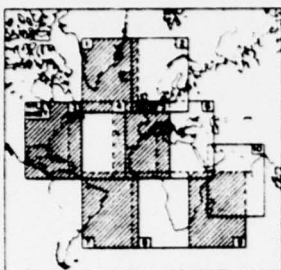
- 1) 80 grabs were recovered
- 2) equipment was tested

#### Participants

Dr. R. L. McMaster	Chief Scientist	U.R.I.
Mr. Jim Frey	Oceanographic Specialist	U.R.I.
Mr. Don Corrigan	Graduate Student	U.R.I.
Mr. Norman Hillman	Graduate Student	U.R.I.
Mr. Donald Phelps	Graduate Student	U.R.I.
Mr. Sheldon Pratt	Graduate Student	U.R.I.
Mr. Wilfred Savard	Graduate Student	U.R.I.

3

N. M. L.  
PLOTING SHEET SERIES  
MERCATOR PROJECTION  
1" LONGITUDE = 0.75 INCHES - SCALE 1:5,845,000



1. Symbols for land, water, and other features.  
2. Symbols for ships and other vessels.  
3. Symbols for weather and other atmospheric conditions.  
4. Symbols for time and other temporal data.  
5. Symbols for location and other spatial data.  
6. Symbols for depth and other bathymetric data.  
7. Symbols for temperature and other oceanographic data.  
8. Symbols for salinity and other oceanographic data.  
9. Symbols for wind and other meteorological data.  
10. Symbols for pressure and other meteorological data.

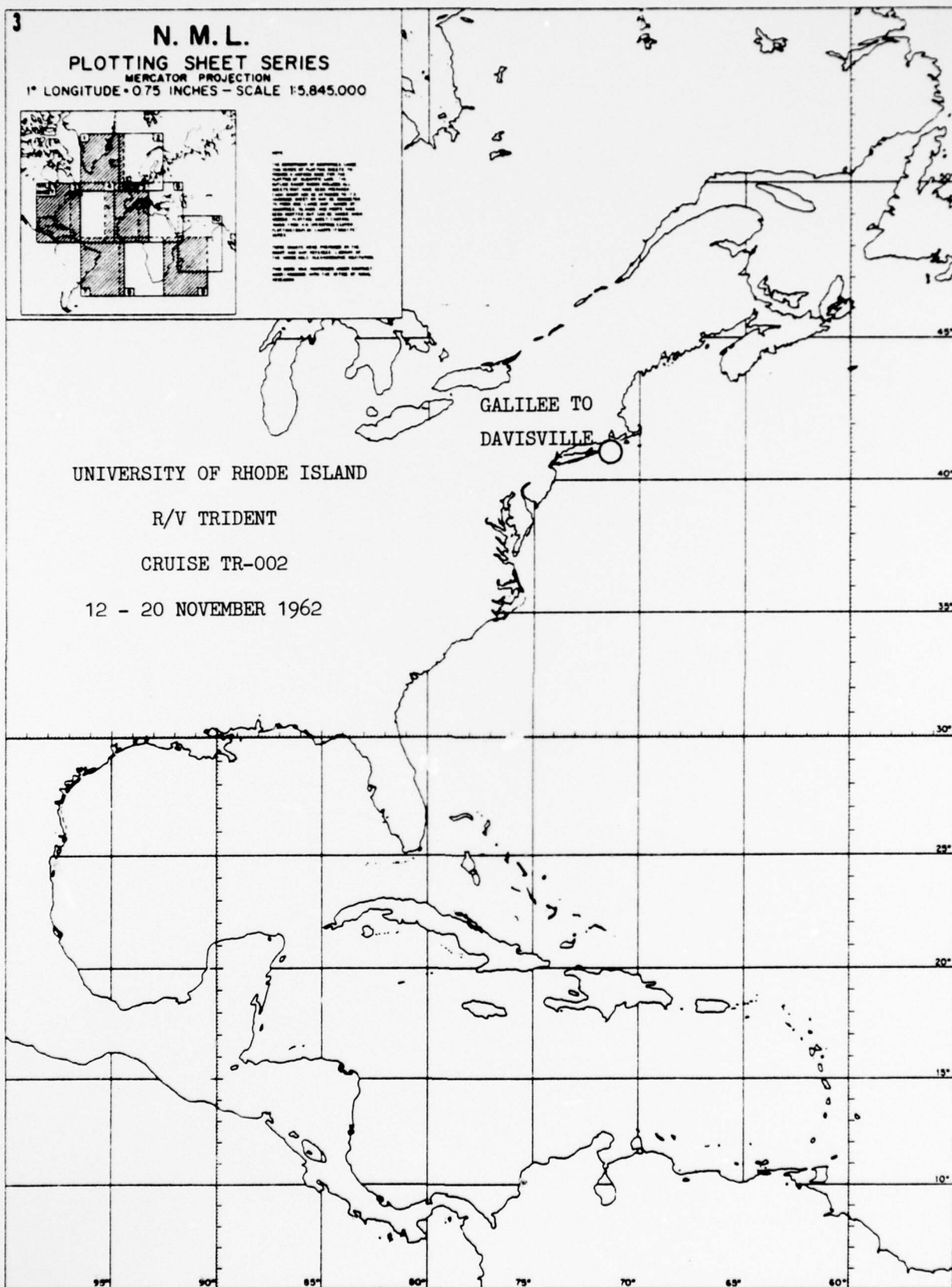
GALILEE TO  
DAVISVILLE

UNIVERSITY OF RHODE ISLAND

R/V TRIDENT

CRUISE TR-002

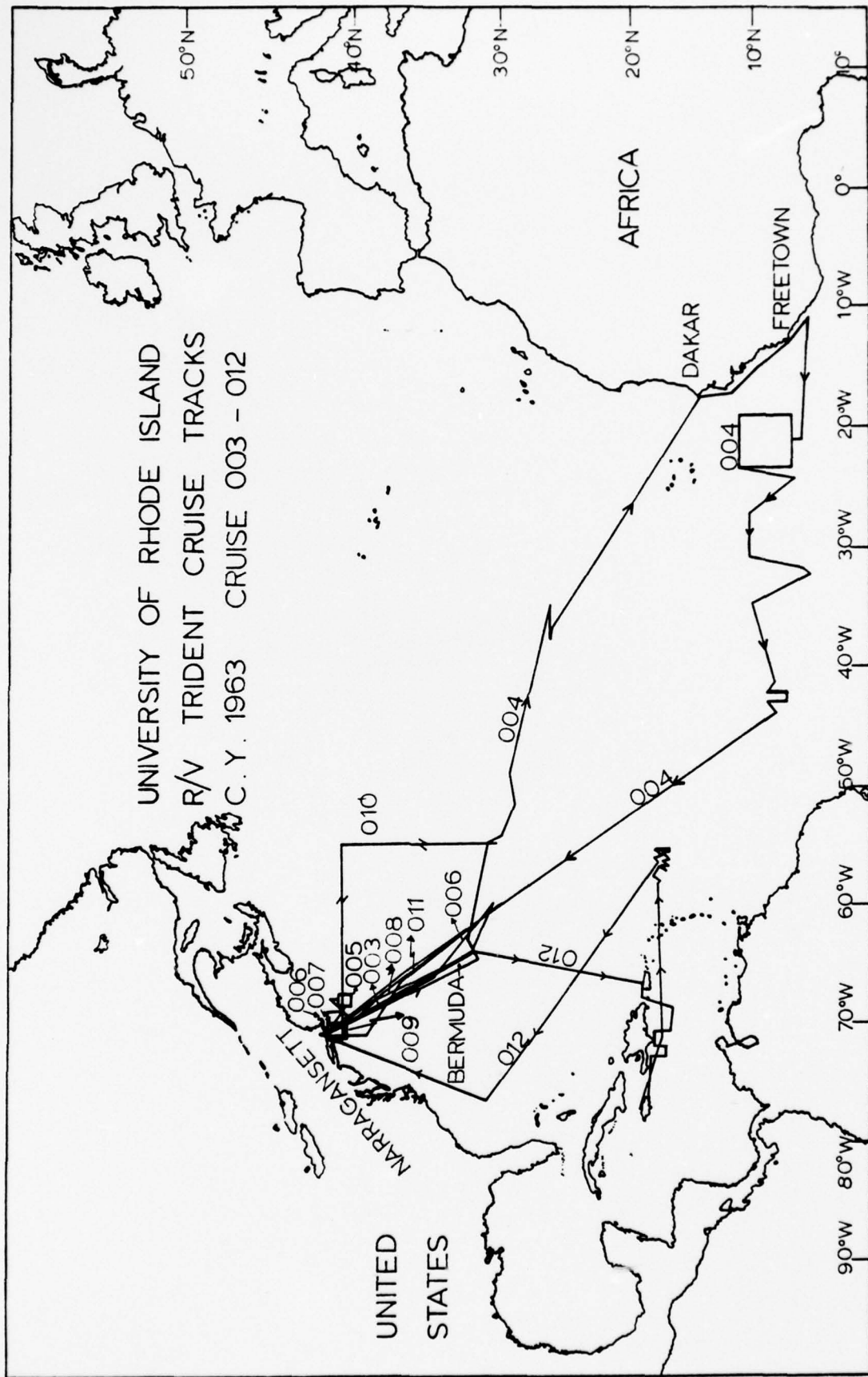
12 - 20 NOVEMBER 1962



R/V TRIDENT Cruises - CY 1963

Cruise No.	Dates	Days at Sea	Area of Operation	Chief Scientist/ Affiliation*
003	5-19 Jan.	7	NW Atlantic	Fish
004	22 Mar. - 6 June	72	North Atlantic	Knauss, Fish, and others
005	24-28 June	5	NW Atlantic	Krause, Jeffries
006	6-20 July	15	NW Atlantic	Fish
007	26 July	1	Rhode Island Sound	Jeffries
008	3-10 Aug.	8	NW Atlantic	Schink, Smayda
009	16-30 Aug.	15	NW Atlantic	McMaster
010	7-21 Sept.	15	NW Atlantic	Sieburth, Conover
011	1-13 Oct.	13	NW Atlantic	Fish
012	1 Nov. - 13 Dec.	40	NW Atlantic, Caribbean	Smayda, Krause, Marshall

\*A11 GS0/URI



Cruise No.: TR-003

Dates: 5 - 19 January 1963

Area of Operation: Northwest  
Atlantic Ocean

Days at sea: 7

Funding: ONR

#### Program Description

The primary objectives of this cruise were:

- a) to test equipment
- b) to run bioacoustic studies in the Gulf Stream

#### Data Collected

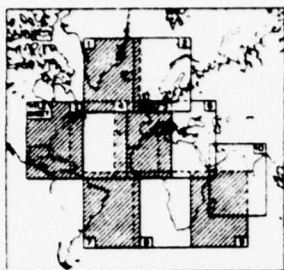
- 1) bioacoustic stations were occupied
- 2) equipment tests were run

#### Participants

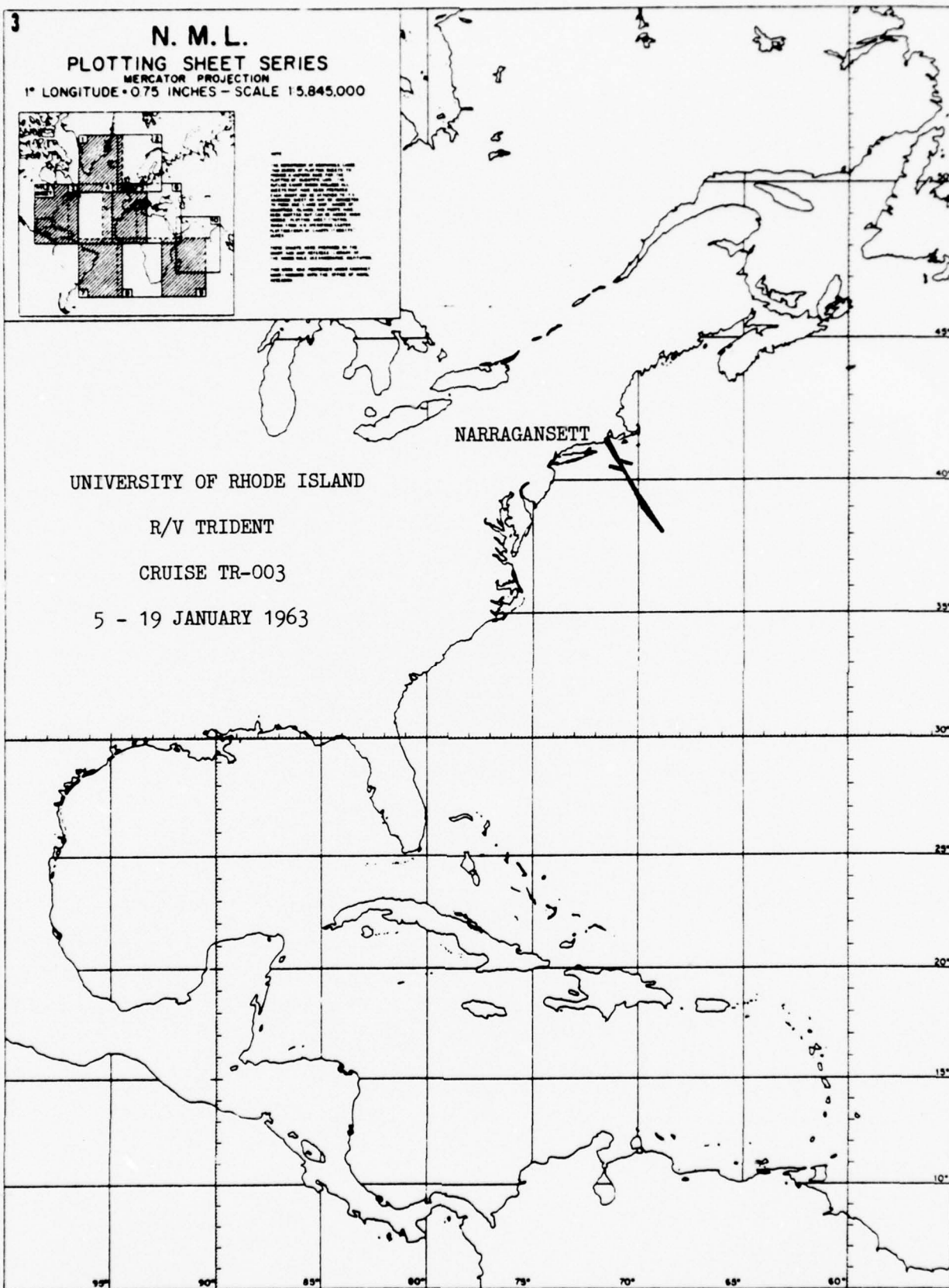
Dr. Charles J. Fish	Chief Scientist	U.R.I.
Dr. Theodore A. Napora	Assistant Professor	U.R.I.
Mr. Paul J. Perkins	Oceanographic Specialist	U.R.I.
Mr. James T. Frey	Oceanographic Specialist	U.R.I.
Mr. Sidney Herman	Oceanographic Specialist	U.R.I.
Mr. Harold Keating	Technical Specialist	U.R.I.
Mr. Robert Sundblad	Technician	U.R.I.

3

N. M. L.  
 PLOTTING SHEET SERIES  
 MERCATOR PROJECTION  
 1" LONGITUDE = 0.75 INCHES - SCALE 1:5,845,000



1. Symbols for land, water, and ice are as shown in the legend.  
 2. Symbols for depth are as shown in the legend.  
 3. Symbols for soundings are as shown in the legend.  
 4. Symbols for currents are as shown in the legend.  
 5. Symbols for magnetic variation are as shown in the legend.  
 6. Symbols for magnetic declination are as shown in the legend.  
 7. Symbols for magnetic variation are as shown in the legend.  
 8. Symbols for magnetic declination are as shown in the legend.  
 9. Symbols for magnetic variation are as shown in the legend.  
 10. Symbols for magnetic declination are as shown in the legend.



UNIVERSITY OF RHODE ISLAND

R/V TRIDENT

CRUISE TR-003

5 - 19 JANUARY 1963

NARRAGANSETT

Cruise No.: TR-004

Dates: 22 March - 6 June 1963

Area of Operation: North  
Atlantic Ocean

Days at sea: 72

Funding: ONR

#### Program Description

The primary objectives of this cruise were:

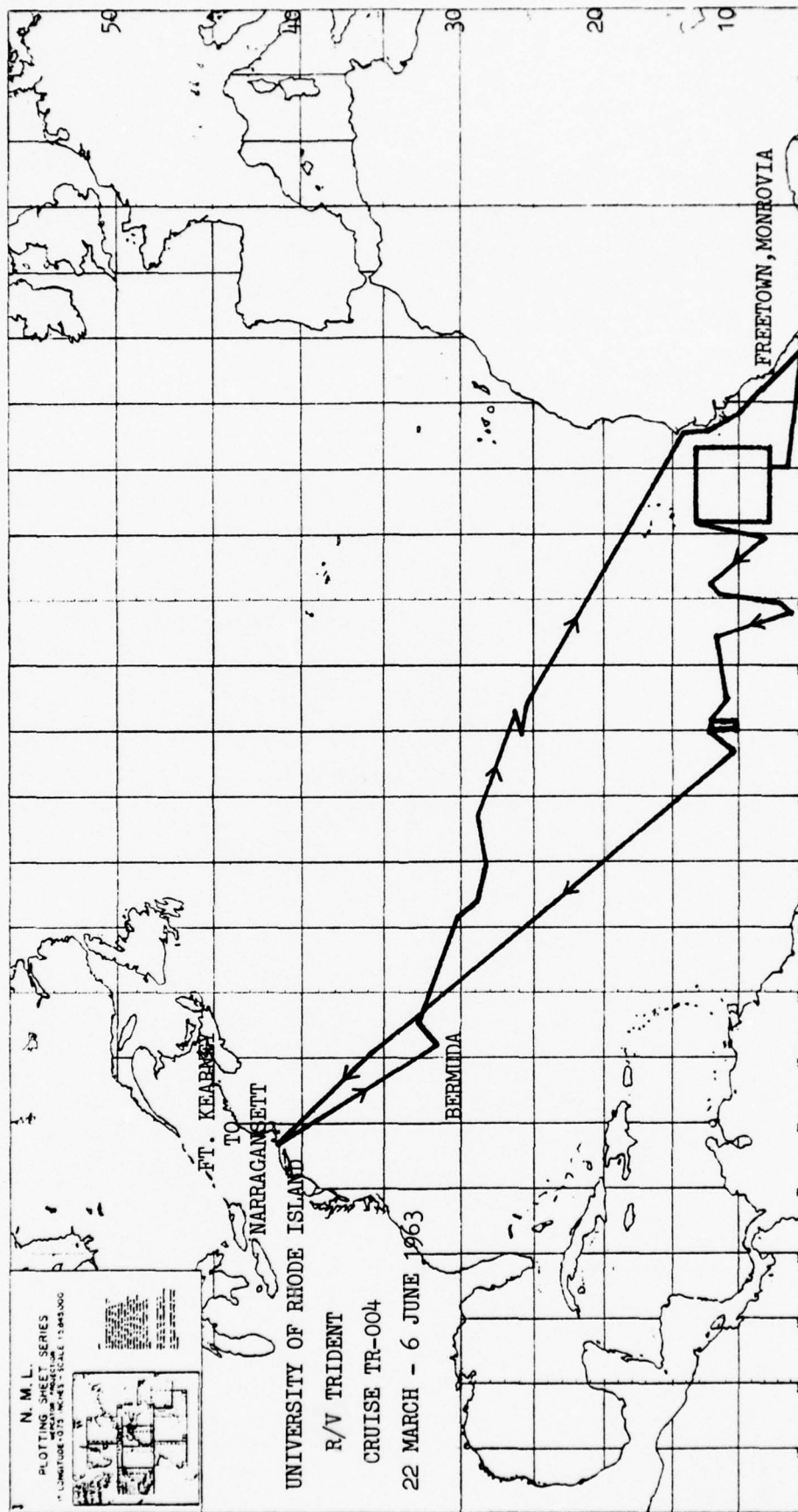
- a) to perform biological and bioacoustic studies
- b) to take chemical samples
- c) to make geological and geophysical studies of the African coast

#### Data Collected

- 1) 8,560 n.m. of bathymetric profiles were run
- 2) 6,000 n.m. of magnetics were taken
- 3) 52 grabs were collected
- 4) nine cores were taken
- 5) seven camera stations were occupied
- 6) 10 hydrographic stations were run

#### Participants

Dr. John A. Knauss	Co-Chief Scientist	U.R.I.
Dr. Charles J. Fish	Co-Chief Scientist	U.R.I.
Dr. Robert McMaster	Co-Chief Scientist	U.R.I.
Dr. Dale C. Krause	Co-Chief Scientist	U.R.I.
Dr. David Schink	Co-Chief Scientist	U.R.I.
Dr. Peter Wangersky	Assistant Professor	Yale
Mr. Paul Perkins	Oceanographic Specialist	U.R.I.
Mr. Thomas D'Ambra	Oceanographic Specialist	U.R.I.
Mr. Maurice Anderson	Oceanographic Specialist	U.R.I.
Mr. James Frey	Oceanographic Specialist	U.R.I.
Mr. Kwadwo Ansong	Graduate Student	U.R.I.
Mr. Donald Corrigan	Graduate Student	U.R.I.
Mr. Donald Gordon	Graduate Student	U.R.I.
Mr. Robert Howe	Graduate Student	U.R.I.
Mr. James Robb	Graduate Student	U.R.I.
Mr. David Roebuck	Graduate Student	U.R.I.
Mr. Clifford Schink	Student	U.R.I.



Cruise No.: TR-005

Dates: 24 - 28 June 1963

Area of Operation: Northwest  
Atlantic Ocean

Days at sea: 5

Funding: QNR

#### Program Description

The primary objectives of this cruise were:

- a) to provide experience for graduate students in handling oceanographic equipment
- b) to make geological and geophysical studies

#### Data Collected

- 1) 1,080 n.m. of bathymetry profiles were run
- 2) 460 n.m. of magnetic profiles were taken
- 3) 52 grabs were recovered
- 4) nine cores were taken
- 5) one dredge was taken
- 6) one camera station was occupied

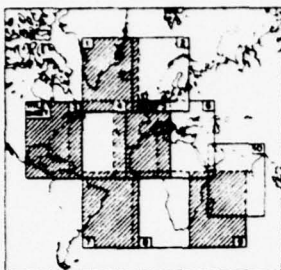
#### Participants

Dr. D. Krause	Co-Chief Scientist	U.R.I.
Dr. H. P. Jeffries	Co-Chief Scientist	U.R.I.
Mr. T. D'Ambra	Marine Technician	U.R.I.
Mr. J. Frey	Marine Technician	U.R.I.
Mr. R. Cooper	Graduate Student	U.R.I.
Mr. D. Corrigan	Graduate Student	U.R.I.
Mr. R. Davis	Graduate Student	U.R.I.
Mr. W. Dillon	Graduate Student	U.R.I.
Mr. T. Gaucher	Graduate Student	U.R.I.
Mr. G. C. Grant	Graduate Student	U.R.I.
Mr. D. W. Lear	Graduate Student	U.R.I.
Mr. M. Marshall	Graduate Student	U.R.I.
Mr. J. K. Moore	Graduate Student	U.R.I.
Ms. C. Oviatt	Graduate Student	U.R.I.
Mr. S. Pratt	Graduate Student	U.R.I.
Mr. J. Schwartz	Graduate Student	U.R.I.

3

N. M. L.  
PLOTING SHEET SERIES

MERCATOR PROJECTION  
1" LONGITUDE = 0.75 INCHES - SCALE 1:5,845,000



1. This sheet covers the area from 60° to 65° N. latitude and 90° to 70° W. longitude. It is one of a series of sheets covering the North Atlantic Ocean. The sheets are numbered as follows: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100.

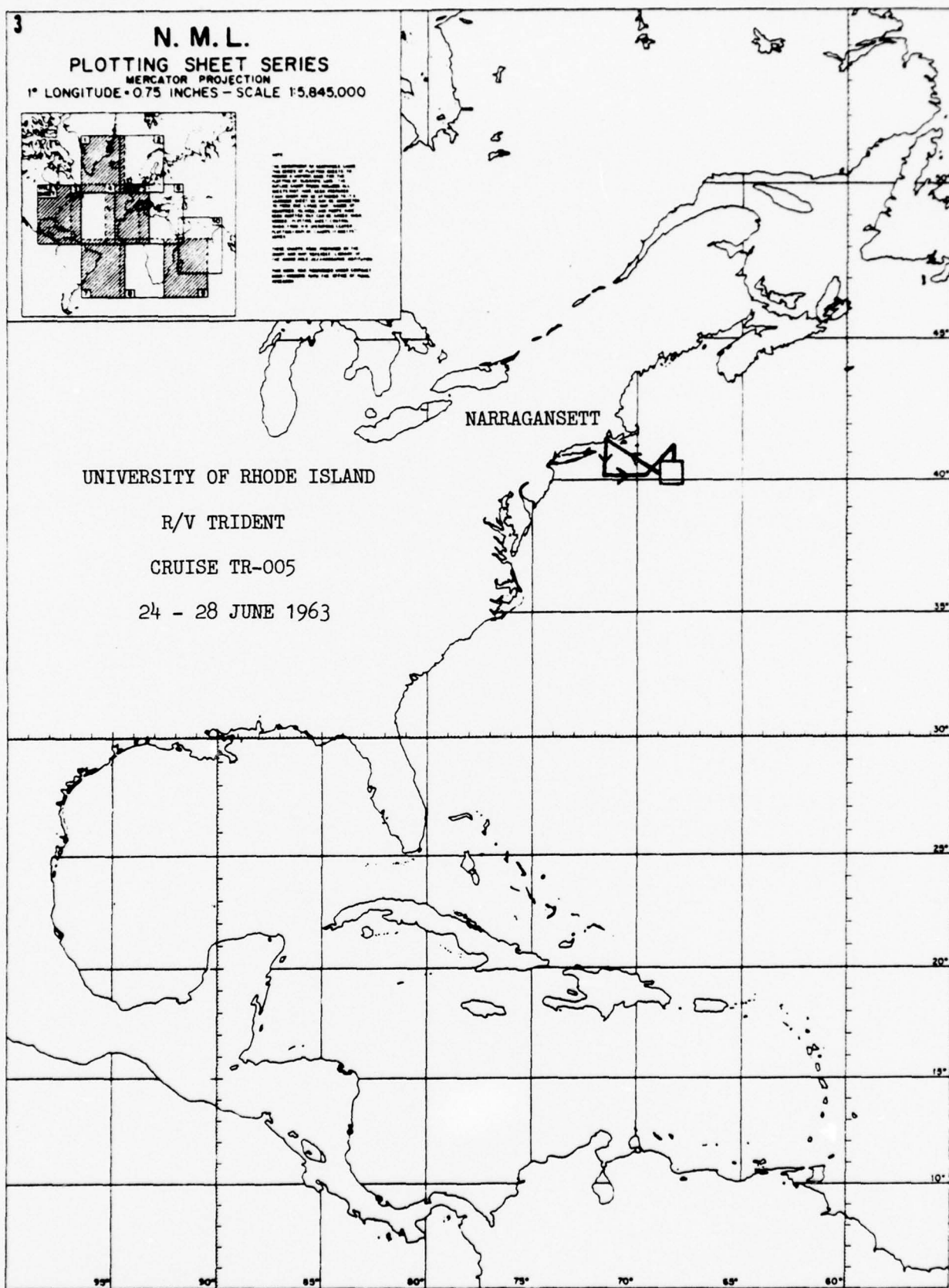
NARRAGANSETT

UNIVERSITY OF RHODE ISLAND

R/V TRIDENT

CRUISE TR-005

24 - 28 JUNE 1963



Cruise No.: TR-006

Dates: 6 - 20 July 1963

Area of Operation: Northwest  
Atlantic Ocean

Days at sea: 15

Funding: ONR

#### Program Description

The primary objectives of this cruise were:

- a) to study biological species at various depths in the Sargasso Sea
- b) to run bioacoustic stations

#### Data Collected

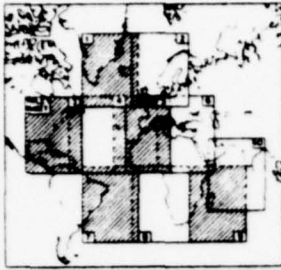
- 1) 15 hauls were taken
- 2) bioacoustic stations were run

#### Participants

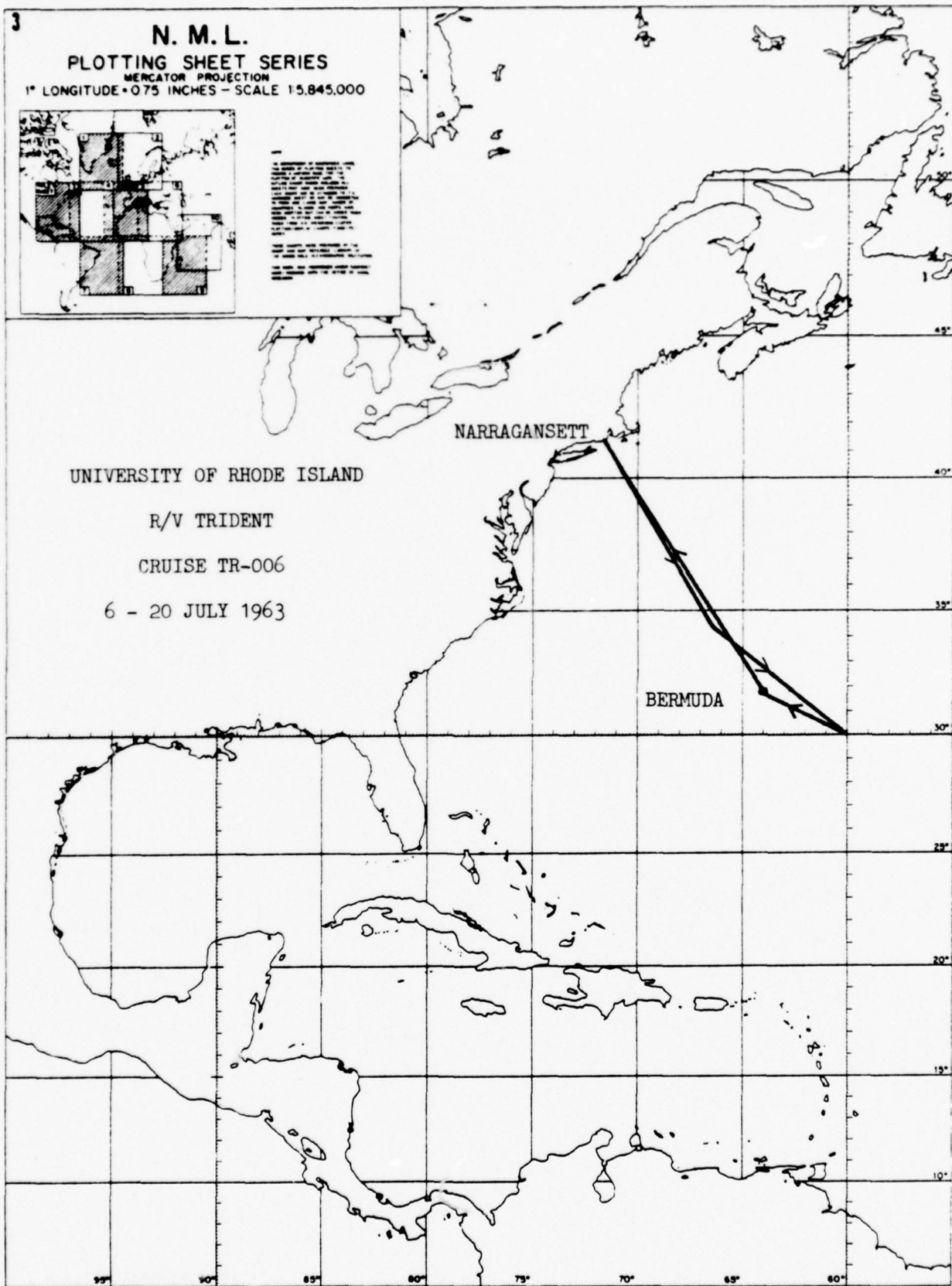
Dr. Charles J. Fish	Chief Scientist	U.R.I.
Dr. Theodore A. Nopora	Assistant Professor	U.R.I.
Mr. Paul J. Perkins	Oceanographic Specialist	U.R.I.
Mr. Thomas S. D'Ambra	Marine Technician	U.R.I.
Mr. Edward C. Brainard II	Technician	U.R.I.
Mr. John H. Martin	Graduate Student	U.R.I.
Mr. Bernard J. McAlice	Graduate Student	U.R.I.

3

N. M. L.  
PLOTting SHEET SERIES  
MERCATOR PROJECTION  
1" LONGITUDE = 0.75 INCHES - SCALE 1:5,845,000



1. 1000 FATHOMS  
2. 2000 FATHOMS  
3. 3000 FATHOMS  
4. 4000 FATHOMS  
5. 5000 FATHOMS  
6. 6000 FATHOMS  
7. 7000 FATHOMS  
8. 8000 FATHOMS  
9. 9000 FATHOMS  
10. 10000 FATHOMS  
11. 11000 FATHOMS  
12. 12000 FATHOMS  
13. 13000 FATHOMS  
14. 14000 FATHOMS  
15. 15000 FATHOMS  
16. 16000 FATHOMS  
17. 17000 FATHOMS  
18. 18000 FATHOMS  
19. 19000 FATHOMS  
20. 20000 FATHOMS  
21. 21000 FATHOMS  
22. 22000 FATHOMS  
23. 23000 FATHOMS  
24. 24000 FATHOMS  
25. 25000 FATHOMS  
26. 26000 FATHOMS  
27. 27000 FATHOMS  
28. 28000 FATHOMS  
29. 29000 FATHOMS  
30. 30000 FATHOMS  
31. 31000 FATHOMS  
32. 32000 FATHOMS  
33. 33000 FATHOMS  
34. 34000 FATHOMS  
35. 35000 FATHOMS  
36. 36000 FATHOMS  
37. 37000 FATHOMS  
38. 38000 FATHOMS  
39. 39000 FATHOMS  
40. 40000 FATHOMS  
41. 41000 FATHOMS  
42. 42000 FATHOMS  
43. 43000 FATHOMS  
44. 44000 FATHOMS  
45. 45000 FATHOMS  
46. 46000 FATHOMS  
47. 47000 FATHOMS  
48. 48000 FATHOMS  
49. 49000 FATHOMS  
50. 50000 FATHOMS  
51. 51000 FATHOMS  
52. 52000 FATHOMS  
53. 53000 FATHOMS  
54. 54000 FATHOMS  
55. 55000 FATHOMS  
56. 56000 FATHOMS  
57. 57000 FATHOMS  
58. 58000 FATHOMS  
59. 59000 FATHOMS  
60. 60000 FATHOMS  
61. 61000 FATHOMS  
62. 62000 FATHOMS  
63. 63000 FATHOMS  
64. 64000 FATHOMS  
65. 65000 FATHOMS  
66. 66000 FATHOMS  
67. 67000 FATHOMS  
68. 68000 FATHOMS  
69. 69000 FATHOMS  
70. 70000 FATHOMS  
71. 71000 FATHOMS  
72. 72000 FATHOMS  
73. 73000 FATHOMS  
74. 74000 FATHOMS  
75. 75000 FATHOMS  
76. 76000 FATHOMS  
77. 77000 FATHOMS  
78. 78000 FATHOMS  
79. 79000 FATHOMS  
80. 80000 FATHOMS  
81. 81000 FATHOMS  
82. 82000 FATHOMS  
83. 83000 FATHOMS  
84. 84000 FATHOMS  
85. 85000 FATHOMS  
86. 86000 FATHOMS  
87. 87000 FATHOMS  
88. 88000 FATHOMS  
89. 89000 FATHOMS  
90. 90000 FATHOMS  
91. 91000 FATHOMS  
92. 92000 FATHOMS  
93. 93000 FATHOMS  
94. 94000 FATHOMS  
95. 95000 FATHOMS  
96. 96000 FATHOMS  
97. 97000 FATHOMS  
98. 98000 FATHOMS  
99. 99000 FATHOMS  
100. 100000 FATHOMS



UNIVERSITY OF RHODE ISLAND

R/V TRIDENT

CRUISE TR-006

6 - 20 JULY 1963

NARRAGANSETT

BERMUDA

Cruise No.: TR-007

Dates: 26 July 1963

Area of Operation: Rhode Island  
Sound

Days at sea: 1

Funding: NSF

Program Description

The primary objective of this cruise was:

- a) to conduct an orientation cruise for the NSF-sponsored summer institute for high school biology teachers

Data Collected

- 1) Shipboard oceanographic equipment was demonstrated

Participants

Dr. H. P. Jeffries

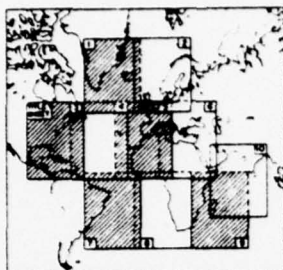
Chief Scientist

U.R.I.

40 high school biology teachers

3

N. M. L.  
PLOTING SHEET SERIES  
MERCATOR PROJECTION  
1" LONGITUDE = 0.75 INCHES - SCALE 1:5,845,000



NOTE: This chart is a reproduction of the original chart and is not to be used for navigation. It is intended for plotting and recording data only. The chart is based on the best available information and is subject to change without notice. The chart is not to be used for navigation and is not to be used for any other purpose.

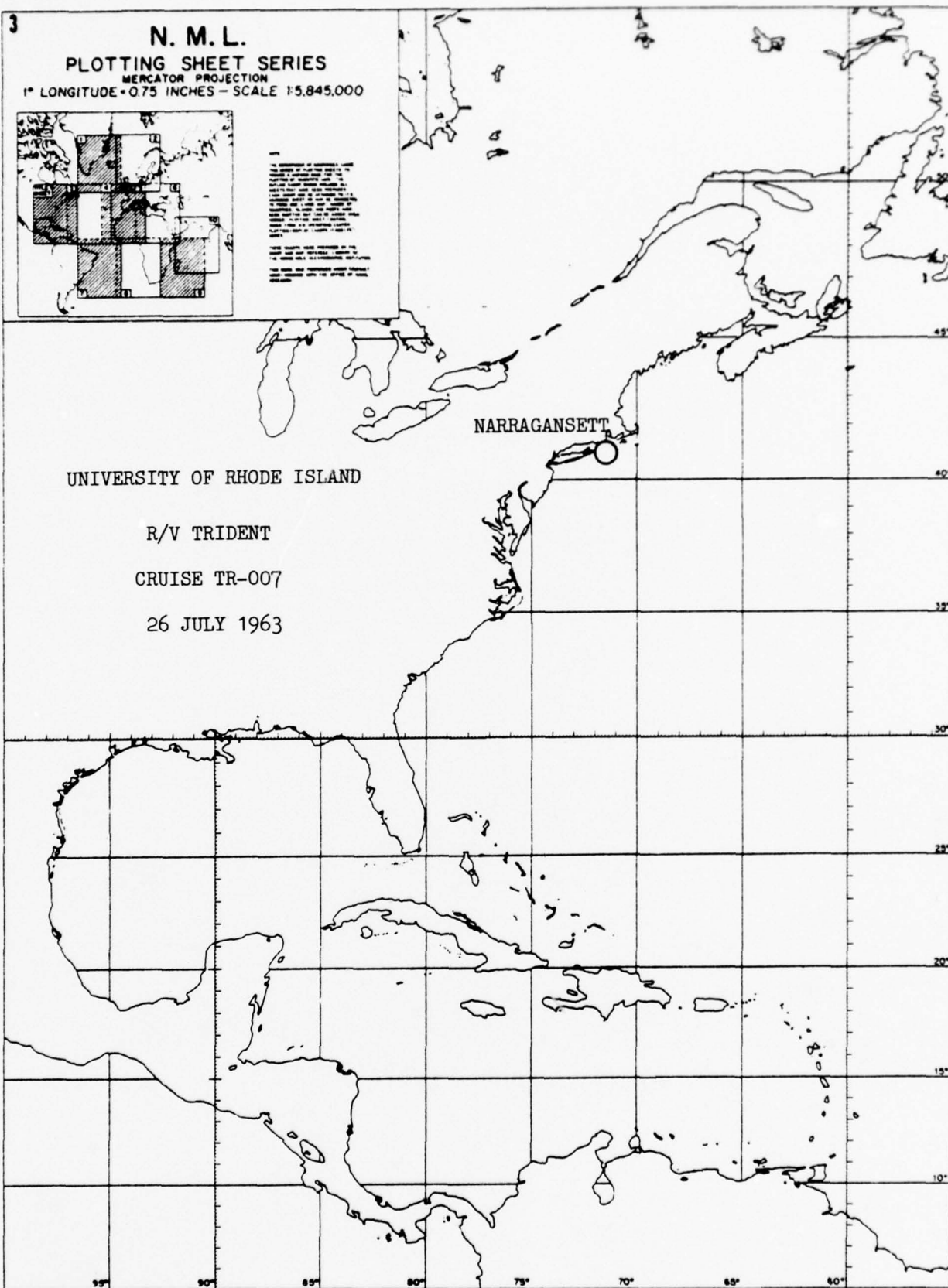
NARRAGANSETT

UNIVERSITY OF RHODE ISLAND

R/V TRIDENT

CRUISE TR-007

26 JULY 1963



Cruise No.: TR-008

Dates: 3 - 10 August 1963

Area of Operation: Northwest  
Atlantic Ocean

Days at sea: 8

Funding: ONR

#### Program Description

The primary objectives of this cruise were:

- a) to take chemical and biological samples on a line between Rhode Island and Bermuda

#### Data Collected

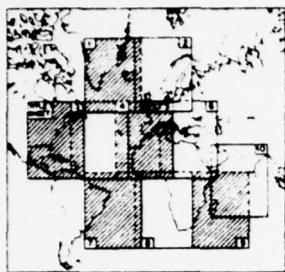
- 1) six hydrostations were taken
- 2) five net tows were recovered

#### Participants

Dr. David Schink	Co-Chief Scientist	U.R.I.
Dr. Theodore Smayda	Co-Chief Scientist	U.R.I.
Mr. Thomas D'Ambra	Marine Technician	U.R.I.
Mr. James Frey	Marine Technician	U.R.I.
Ms. Brenda Boleyn	Research Assistant	U.R.I.
Ms. Nancy Coman	Technical Assistant	U.R.I.
Mr. David Giuliano	Technical Assistant	U.R.I.
Mr. Samuel Hopp	Graduate Student	U.R.I.
Mr. Sheldon Pratt	Graduate Student	U.R.I.
Mr. Kenneth Wunschel	Graduate Student	U.R.I.

3

N. M. L.  
PLOTting SHEET SERIES  
MERCATOR PROJECTION  
1" LONGITUDE = 0.75 INCHES - SCALE 1:5,845,000



1. The following information is to be entered on the plotting sheet in the space provided below the title block. The information should be entered in the space provided below the title block.

2. The following information is to be entered on the plotting sheet in the space provided below the title block. The information should be entered in the space provided below the title block.

3. The following information is to be entered on the plotting sheet in the space provided below the title block. The information should be entered in the space provided below the title block.

4. The following information is to be entered on the plotting sheet in the space provided below the title block. The information should be entered in the space provided below the title block.

5. The following information is to be entered on the plotting sheet in the space provided below the title block. The information should be entered in the space provided below the title block.

6. The following information is to be entered on the plotting sheet in the space provided below the title block. The information should be entered in the space provided below the title block.

7. The following information is to be entered on the plotting sheet in the space provided below the title block. The information should be entered in the space provided below the title block.

8. The following information is to be entered on the plotting sheet in the space provided below the title block. The information should be entered in the space provided below the title block.

9. The following information is to be entered on the plotting sheet in the space provided below the title block. The information should be entered in the space provided below the title block.

10. The following information is to be entered on the plotting sheet in the space provided below the title block. The information should be entered in the space provided below the title block.

UNIVERSITY OF RHODE ISLAND

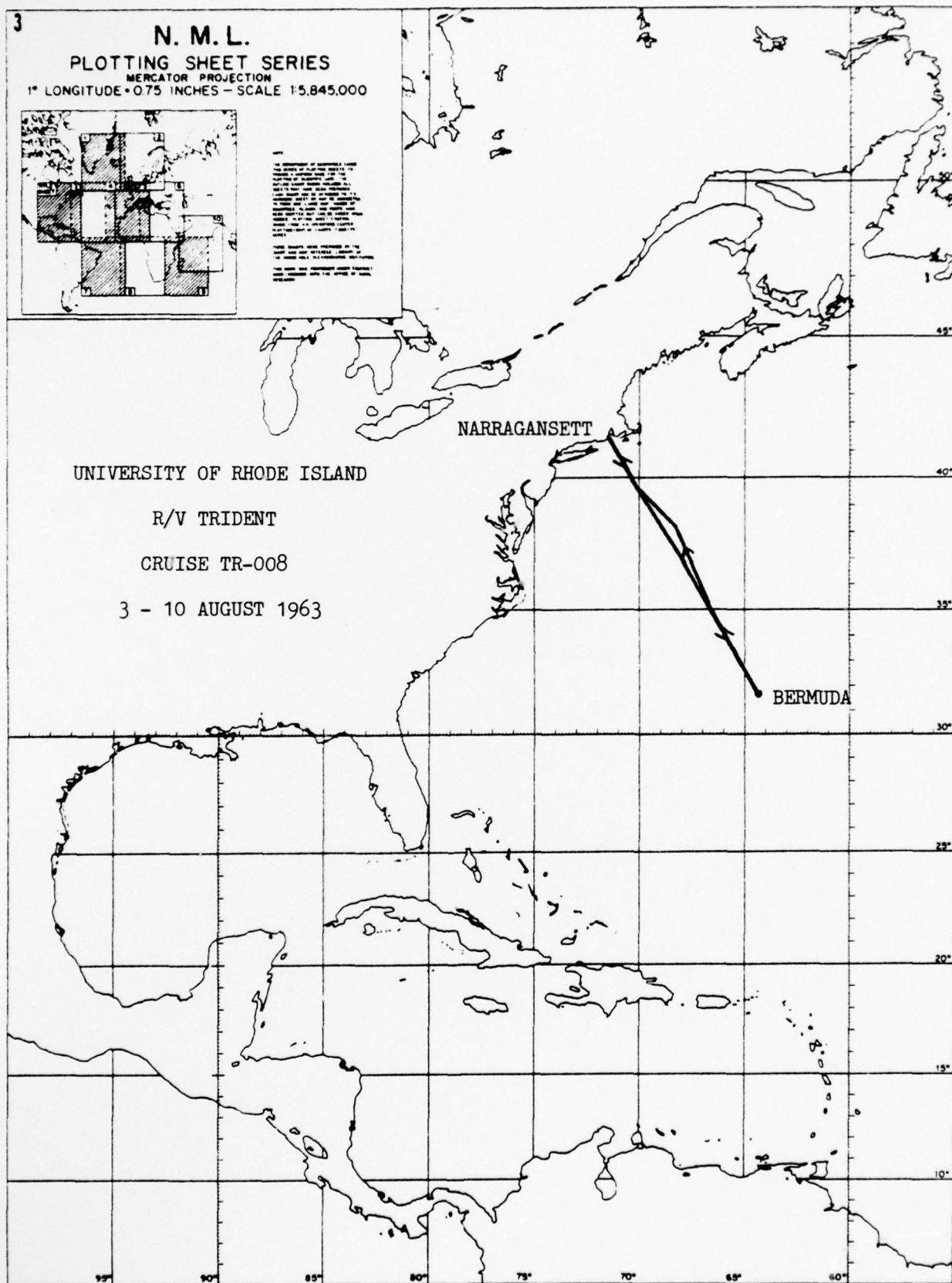
R/V TRIDENT

CRUISE TR-008

3 - 10 AUGUST 1963

NARRAGANSETT

BERMUDA



Cruise No.: TR-009

Dates: 16 - 30 August 1963

Area of Operation: Northwest  
Atlantic Ocean

Days at sea: 15

Funding: ONR

#### Program Description

The primary objective of this cruise was:

- a) to study the geological and geophysical characteristics of the continental shelf off New England

#### Data Collected

- 1) 2,000 n.m. of bathymetric profiles were run
- 2) 119 n.m. of seismic reflection profiles were taken
- 3) 120 grabs were recovered
- 4) 31 cores were taken
- 5) eight camera stations were occupied
- 6) seven hydrographic stations were taken
- 7) seven XBT's were taken
- 8) biological tows were made

#### Participants

Dr. Robert L. McMaster	Chief Scientist	U.R.I.
Dr. Robert I. Krasner	Professor	Providence College
Mr. Thomas D'Ambra	Marine Technician	U.R.I.
Mr. Warren Hall	Marine Technician	U.R.I.
Mr. Peter Paoletta	Marine Technician	U.R.I.
Mr. Samuel Smith	Marine Technician	U.R.I.
Mr. Donald Corrigan	Graduate Student	U.R.I.
Mr. Louis E. Garrison	Graduate Student	U.R.I.
Mr. Sheldon Pratt	Graduate Student	U.R.I.
Mr. James Schwartz	Graduate Student	U.R.I.
Mr. Edward Hayes	Student	Providence College
Mr. Malcolm McConnell	Student	Yale University

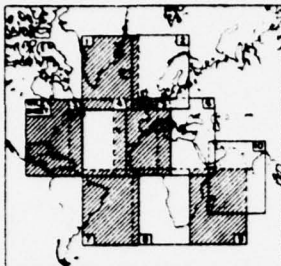
3

N. M. L.

## PLOTting SHEET SERIES

MERCATOR PROJECTION

1" LONGITUDE = 0.75 INCHES - SCALE 1:5,845,000



1. The following information is to be entered on the plotting sheet in the space provided below the title block. The information should be entered in the space provided below the title block.

2. The following information is to be entered on the plotting sheet in the space provided below the title block. The information should be entered in the space provided below the title block.

3. The following information is to be entered on the plotting sheet in the space provided below the title block. The information should be entered in the space provided below the title block.

4. The following information is to be entered on the plotting sheet in the space provided below the title block. The information should be entered in the space provided below the title block.

5. The following information is to be entered on the plotting sheet in the space provided below the title block. The information should be entered in the space provided below the title block.

6. The following information is to be entered on the plotting sheet in the space provided below the title block. The information should be entered in the space provided below the title block.

7. The following information is to be entered on the plotting sheet in the space provided below the title block. The information should be entered in the space provided below the title block.

8. The following information is to be entered on the plotting sheet in the space provided below the title block. The information should be entered in the space provided below the title block.

9. The following information is to be entered on the plotting sheet in the space provided below the title block. The information should be entered in the space provided below the title block.

10. The following information is to be entered on the plotting sheet in the space provided below the title block. The information should be entered in the space provided below the title block.

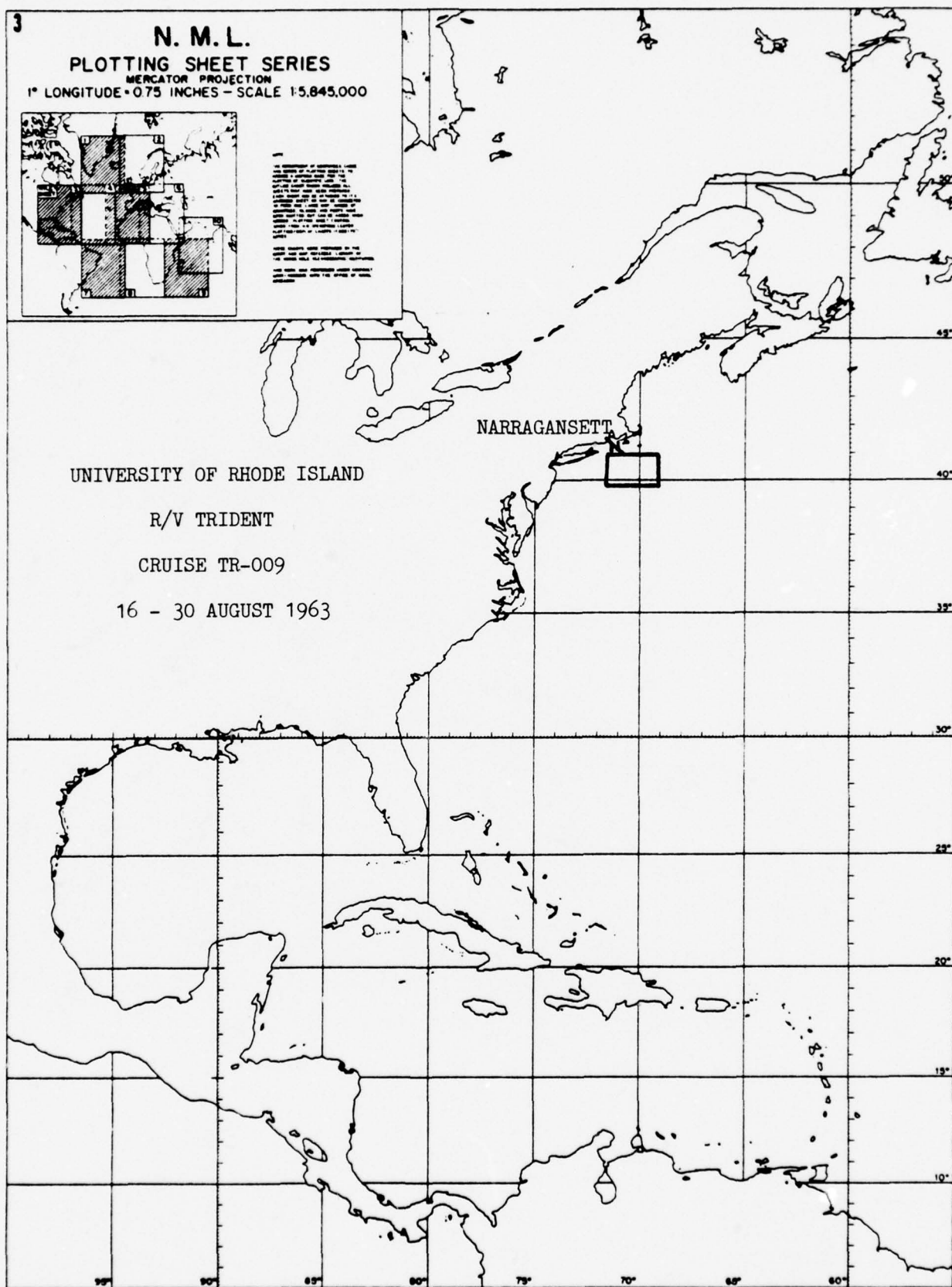
NARRAGANSETT

UNIVERSITY OF RHODE ISLAND

R/V TRIDENT

CRUISE TR-009

16 - 30 AUGUST 1963



Cruise No.: TR-010

Dates: 7 - 21 September 1963

Area of Operation: Northwest  
Atlantic Ocean

Days at sea: 15

Funding: ONR

#### Program Description

The primary objective of this cruise was:

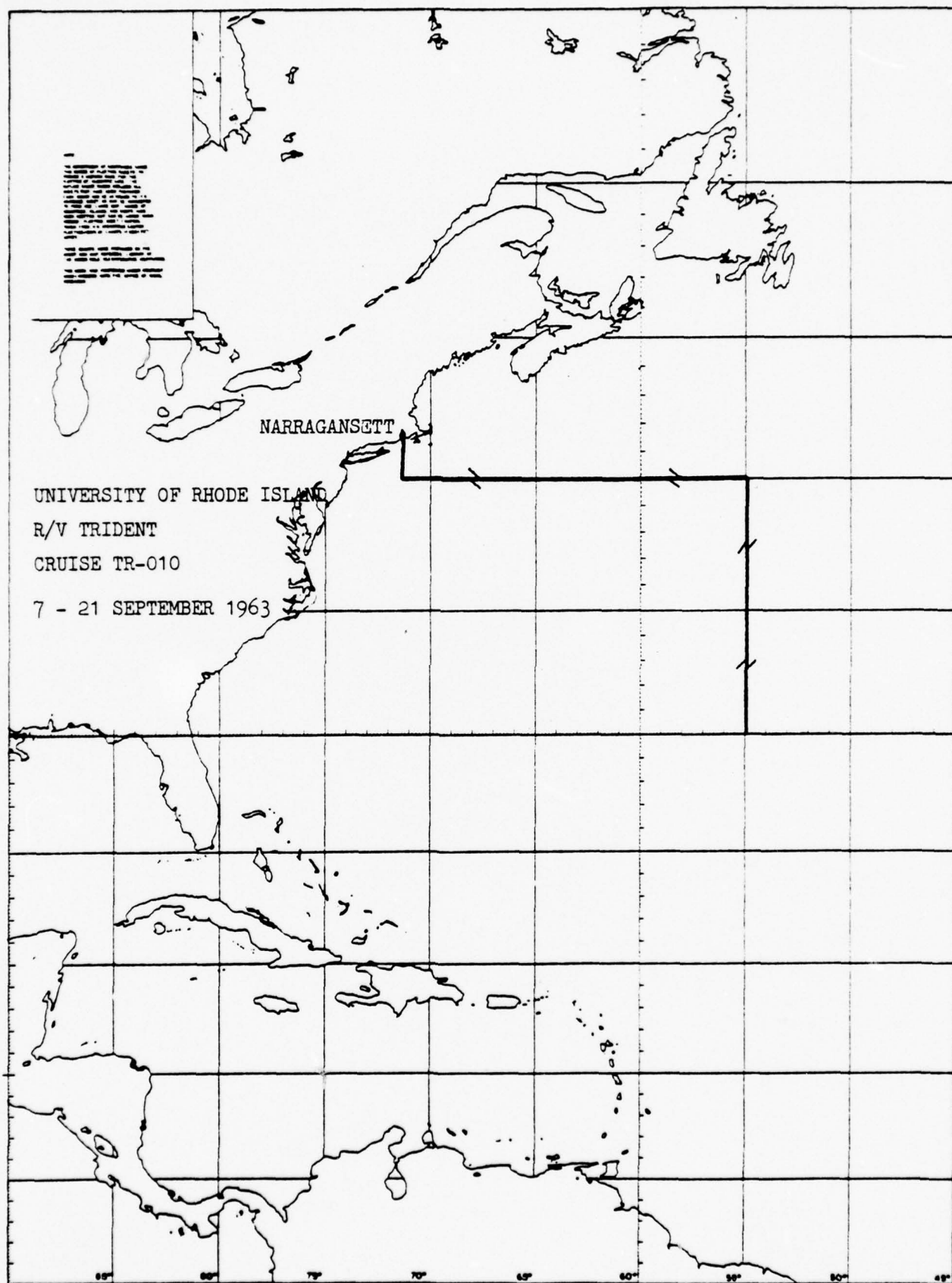
- a) to perform bacteriological studies of seawater on a track to the Gulf Stream and Sargasso Sea

#### Data Collected

- 1) 30 stations of water collection were made
- 2) sargassum weed was studied

#### Participants

Dr. J. McN. Sieburth	Co-Chief Scientist	U.R.I.
Dr. J. T. Conover	Co-Chief Scientist	U.R.I.
Mr. J. A. Frey	Marine Technician	U.R.I.
Mr. M. R. Bracci	Research Assistant	U.R.I.
Mr. P. Iveton	Graduate Student	U.R.I.
Mr. D. W. Lear	Graduate Student	U.R.I.
Mr. R. A. Murchelano	Graduate Student	U.R.I.
Mr. M. D. Rogick	Graduate Student	U.R.I.



Cruise No.: TR-011

Dates: 1 - 13 October 1963

Area of Operation: Northwest  
Atlantic Ocean

Days at sea: 13

Funding: ONR

#### Program Description

The primary objectives of this cruise were:

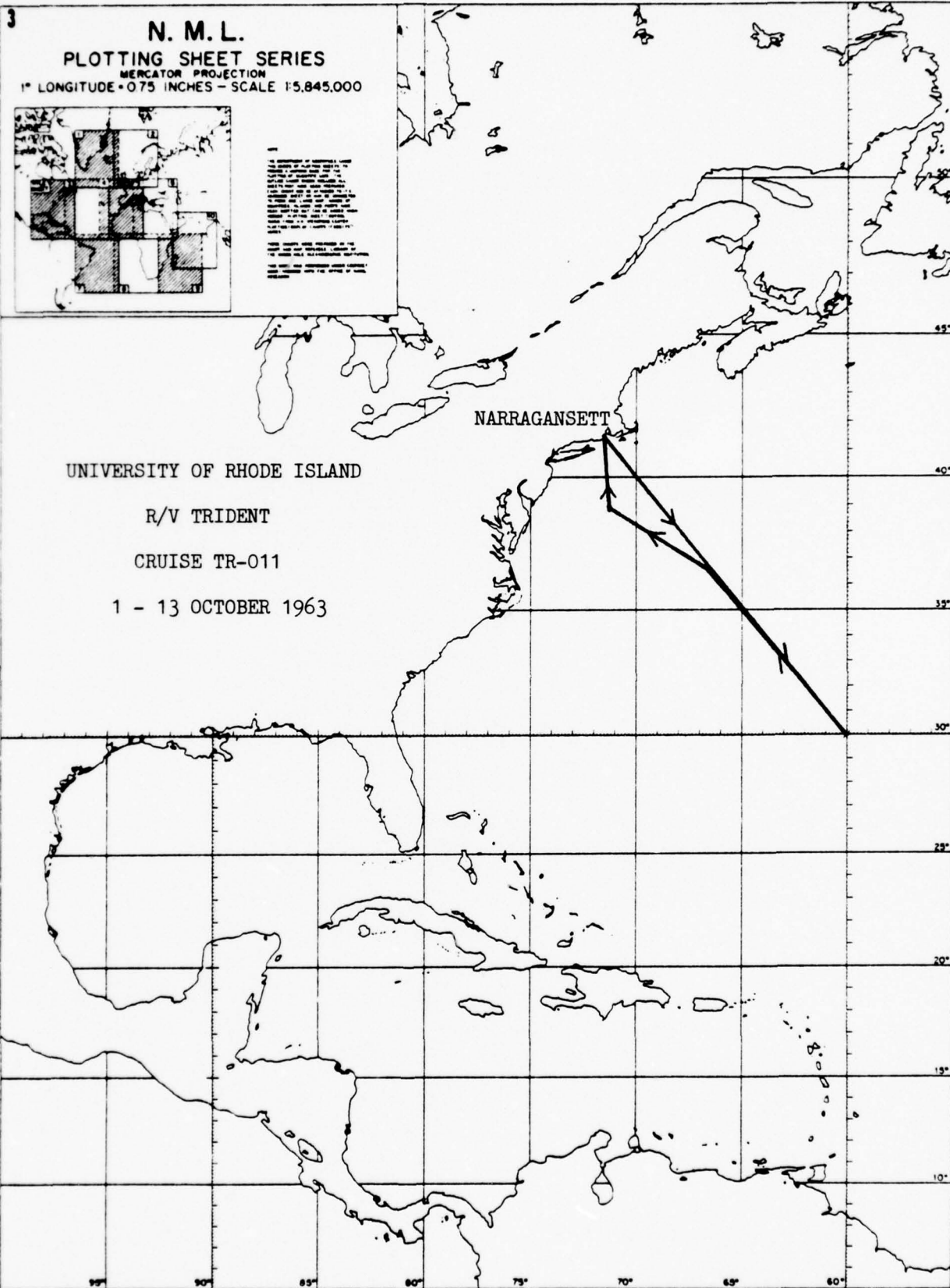
- a) to perform biological and bioacoustic studies

#### Data Collected

- 1) seven biological hauls were recovered
- 2) bioacoustic studies were made
- 3) sargassum weed was collected

#### Participants

Dr. Charles J. Fish	Chief Scientist	U.R.I.
Dr. Theodore A. Napora	Assistant Professor	U.R.I.
Mr. Paul J. Perkins	Oceanographic Specialist	U.R.I.
Mr. David K. Roebuck	Oceanographic Specialist	U.R.I.
Mr. Thomas S. D'Ambra	Marine Technician	U.R.I.
Mr. Warren H. Hall	Marine Technician	U.R.I.



Cruise No.: TR-012

Dates: 1 November - 13 December 1963      Area of Operation: Caribbean Sea

Days at sea: 40

Funding: ONR, NSF

#### Program Description

The primary objectives of this cruise were:

- a) to perform biological studies
- b) to study organic aggregates in the open ocean and near reefs
- c) to perform geological and geophysical studies

#### Data Collected

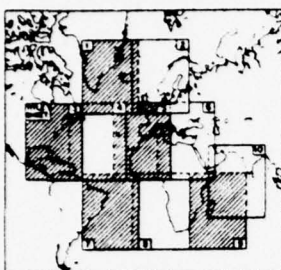
- 1) 550 n.m. of bathymetric profiles were run
- 2) 350 n.m. of magnetic profiles were taken
- 3) four grabes were recovered
- 4) one core was taken
- 5) 23 hydrostations were occupied
- 6) seven MBT's were taken
- 7) eight net tows were made
- 8) five trawls were recovered

#### Participants

Dr. Theodore J. Smayda	Co-Chief Scientist	U.R.I.
Dr. Nelson Marshall	Co-Chief Scientist	U.R.I.
Dr. Dale C. Krause	Co-Chief Scientist	U.R.I.
Dr. Theodore A. Napora	Assistant Professor	U.R.I.
Mr. Thomas D'Ambra	Marine Technician	U.R.I.
Mr. Trevor Callus	Marine Technician	U.R.I.
Mr. James Frey	Marine Technician	U.R.I.
Mr. David Bennett	Graduate Student	U.R.I.
Ms. Brenda Boleyn	Graduate Student	U.R.I.
Mr. Donald J. Corrigan	Graduate Student	U.R.I.
Ms. Roberta L. Davis	Graduate Student	U.R.I.
Mr. Thomas A. Gaucher	Graduate Student	U.R.I.
Mr. Kenneth Wunschel	Graduate Student	U.R.I.

3

N. M. L.  
PLOTING SHEET SERIES  
MERCATOR PROJECTION  
1° LONGITUDE = 0.75 INCHES - SCALE 1:5,845,000



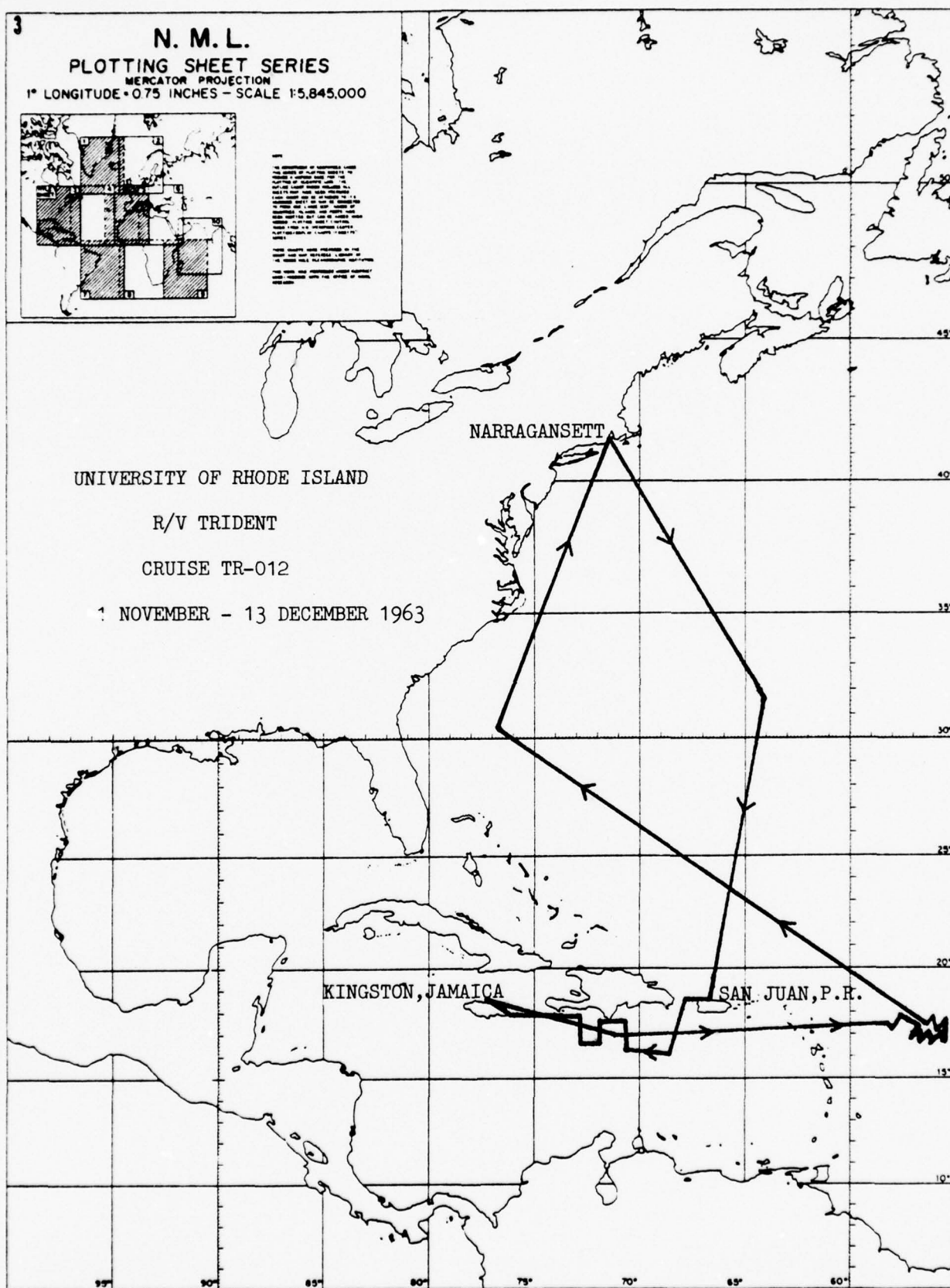
NOTE: This chart is a reproduction of the original chart. It is not to be used for navigation. It is for reference only. The original chart is the only one to be used for navigation. The original chart is the only one to be used for navigation.

UNIVERSITY OF RHODE ISLAND

R/V TRIDENT

CRUISE TR-012

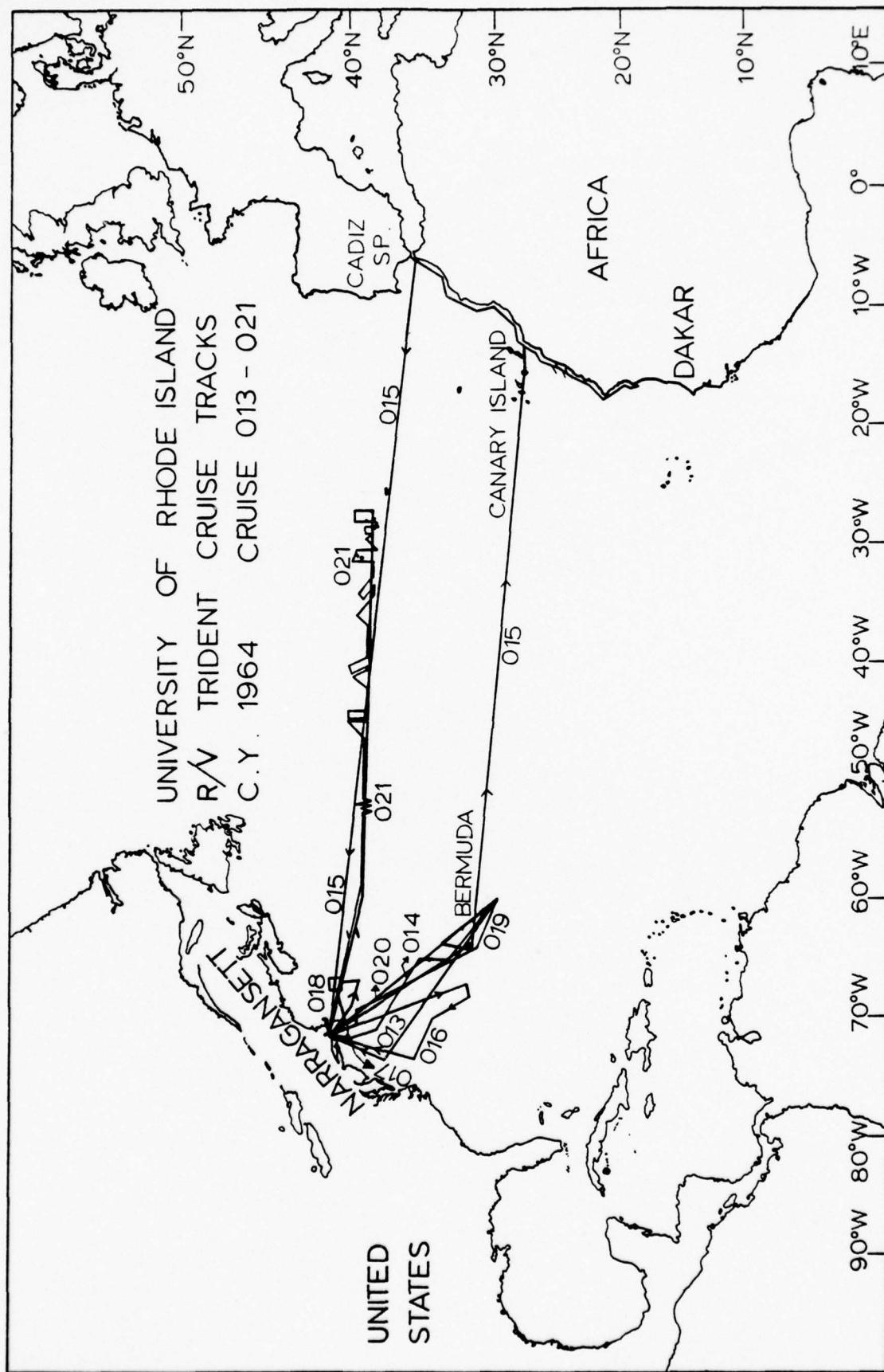
1 NOVEMBER - 13 DECEMBER 1963



R/V TRIDENT Cruises - CY 1964

Cruise No.	Dates	Days at Sea	Area of Operation	Chief Scientist/ Affiliation*
013	3-17 Jan.	15	NW Atlantic	Fish
014	31 Mar. - 9 Apr.	10	NW Atlantic	Fish
015	13 Apr. - 2 June	48	North Atlantic	McMaster
016	12 June - 3 July	22	NW Atlantic	Knauss
017	8 July	1	NW Atlantic	Jeffries
018	13-26 July	14	NW Atlantic	Schink
019	4-19 Aug.	14	NW Atlantic	Fish
020	26 Aug. - 2 Sept.	8	NW Atlantic	Smayda
021	16 Sept. - 3 Nov.	47	North Atlantic	Schink, Krause

\*All GS0/URI



Cruise No.: TR-013

Dates: 3 - 17 January 1964

Area of Operation: Northwest  
Atlantic Ocean

Days at sea: 15

Funding: ONR

#### Program Description

The main purposes of this cruise were:

- a) to perform biological and chemical studies in the Gulf Stream and Sargasso Sea
- b) to run bioacoustic stations

#### Data Collected

- 1) two hydrographic stations were occupied
- 2) eight tows were made
- 3) two trawls were recovered
- 4) bioacoustic stations were run

#### Participants

Dr. Charles J. Fish	Chief Scientist	U.R.I.
Dr. Theodore A. Napora	Assistant Professor	U.R.I.
Dr. John T. Conover	Assistant Professor	U.R.I.
Dr. Gordon A. Riley	Professor	Dalhousie Univ.
Mr. Paul J. Perkins	Oceanographic Specialist	U.R.I.
Mr. Albert L. Brooks III	Oceanographic Specialist	U.R.I.
Mr. Thomas S. D'Ambra	Marine Technician	U.R.I.
Mr. Warren H. Hall	Marine Technician	U.R.I.

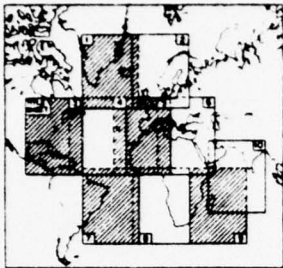
3

N. M. L.

## PLOTING SHEET SERIES

MERCATOR PROJECTION

1° LONGITUDE = 0.75 INCHES - SCALE 1:5,845,000



1. Symbols for land, water, and other features.  
2. Symbols for ships and aircraft.  
3. Symbols for weather and sea conditions.  
4. Symbols for time and date.  
5. Symbols for other information.

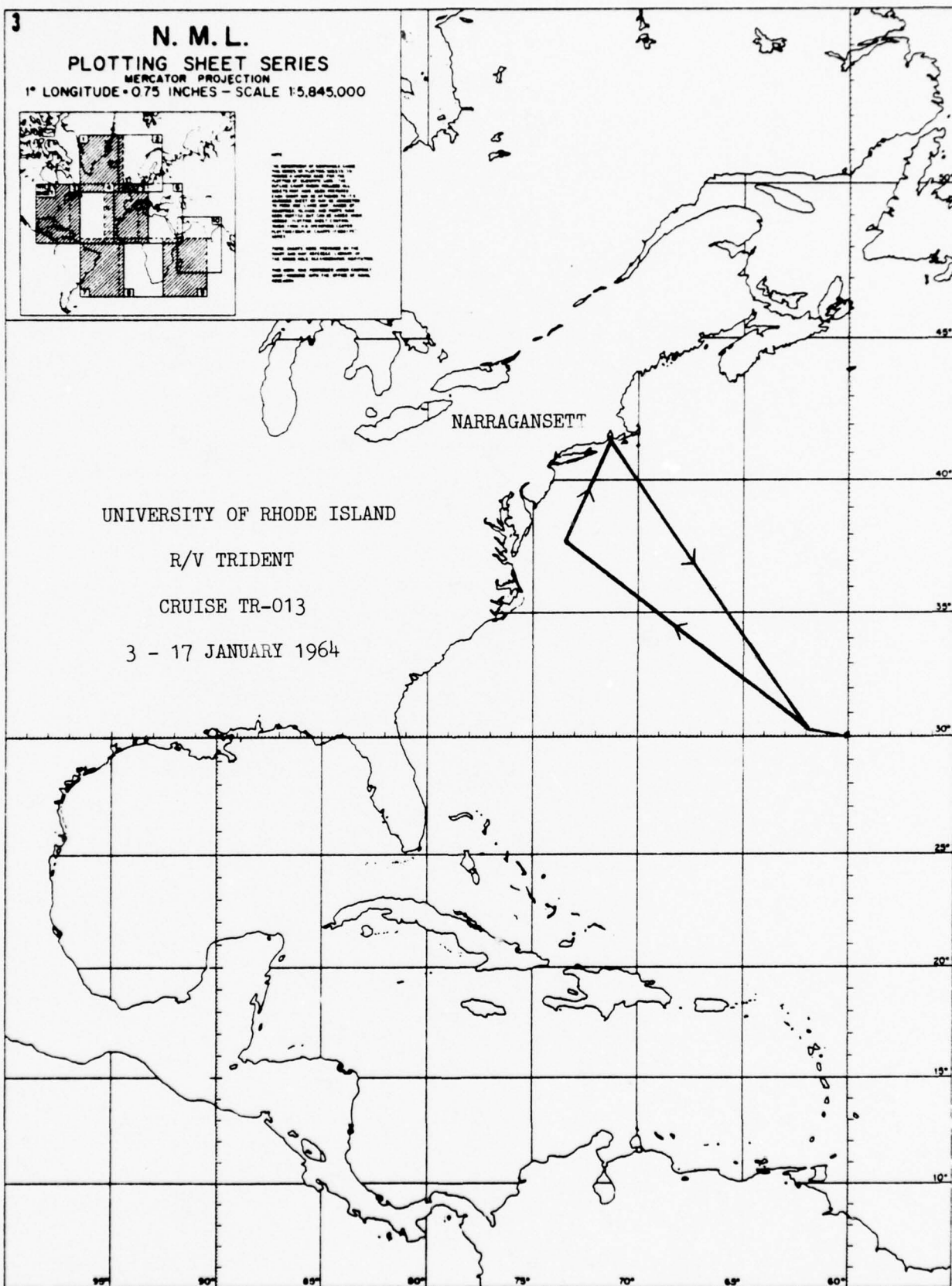
NARRAGANSETT

UNIVERSITY OF RHODE ISLAND

R/V TRIDENT

CRUISE TR-013

3 - 17 JANUARY 1964



Cruise No.: TR-014

Dates: 31 March - 9 April 1964

Area of Operation: Northwest  
Atlantic Ocean

Days at sea: 10

Funding: ONR

#### Program Description

The main purposes of this cruise were:

- a) to perform biological stations
- b) to run bioacoustic stations

#### Data Collected

- 1) three hydrographic stations were run
- 2) trawls were run
- 3) bioacoustic stations were occupied

#### Participants

Dr. Charles J. Fish	Chief Scientist	U.R.I.
Dr. Theodore A. Napora	Assistant Professor	U.R.I.
Mr. Paul J. Perkins	Oceanographic Specialist	U.R.I.
Mr. David K. Roebuck	Oceanographic Specialist	U.R.I.
Mr. Thomas S. D'Ambra	Marine Technician	U.R.I.
Mr. James M. Frey	Marine Technician	U.R.I.
Mr. John P. Piety	Marine Technician	U.R.I.
Mr. Lawrence J. Dunn	Graduate Student	U.R.I.
Mr. Fourtin Powell	Graduate Student	U.R.I.
Mr. Robert A. Radulski	Graduate Student	U.R.I.



Cruise No.: TR-015

Dates: 13 April - 2 June 1964

Area of Operation: Northwest and  
Northeast  
Atlantic Ocean

Days at sea: 48

Funding: ONR

#### Program Description

The main purposes of this cruise were:

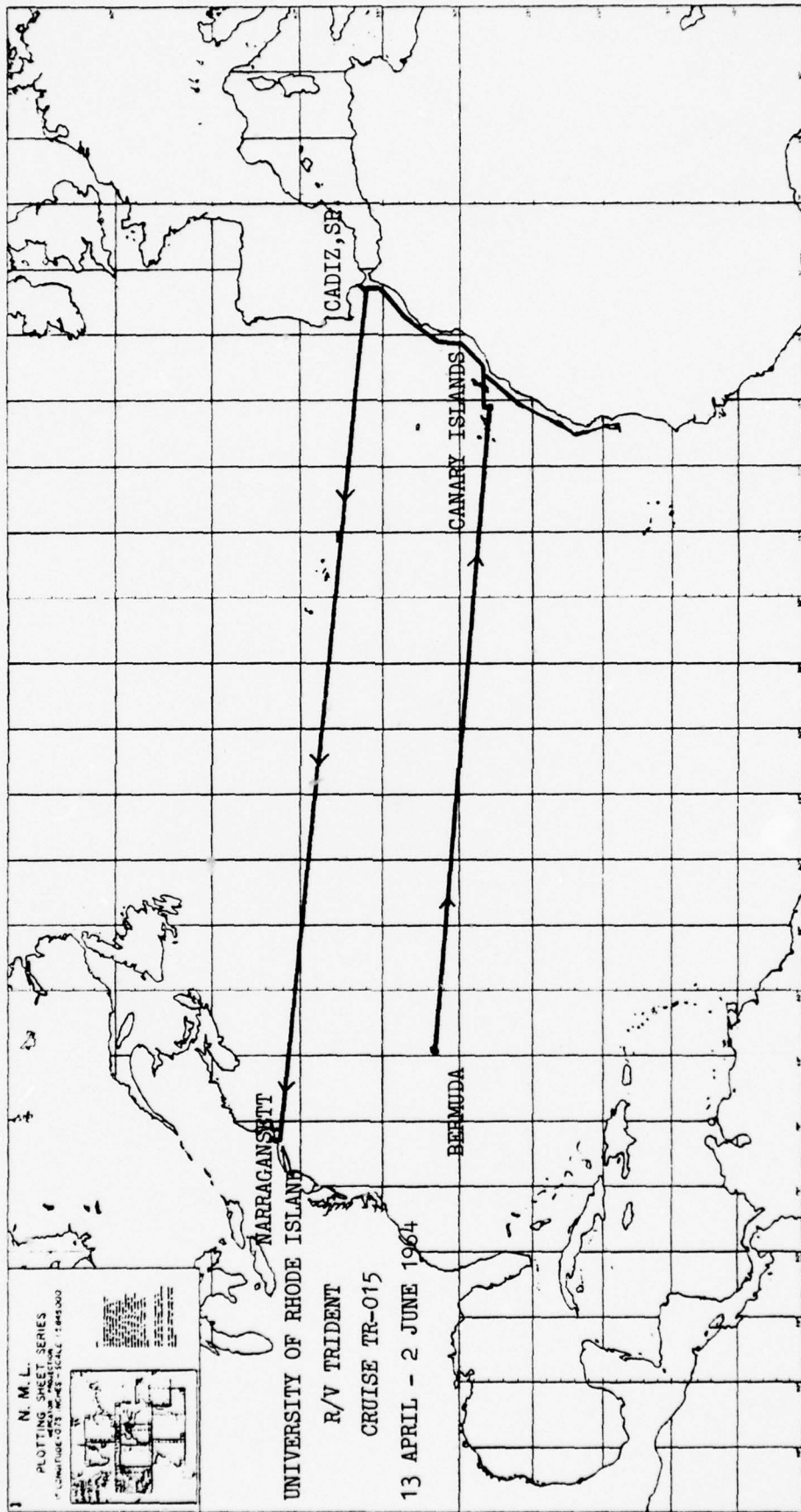
- a) to study the geological and geophysical properties of the shelf off the West African coast
- b) to run bathymetry transects across the North Atlantic Ocean
- c) to take biological samples

#### Data Collected

- 1) 8,000 n.m. of bathymetric profiles were run
- 2) 5,500 n.m. of magnetic lines were run
- 3) 330 n.m. of seismic reflection profiles were taken
- 4) 132 bottom grabs were recovered
- 5) nine dredges were taken
- 6) 14 camera stations were occupied
- 7) 48 MBT's were run
- 8) 42 plankton tows were taken

#### Participants

Dr. R. McMaster	Chief Scientist	U.R.I.
Mr. T. D'Ambra	Marine Technician	U.R.I.
Mr. J. Frey	Marine Technician	U.R.I.
Mr. J. Piety	Marine Technician	U.R.I.
Mr. N. Hillman	Graduate Student	U.R.I.
Mr. F. Powell	Graduate Student	U.R.I.
Mr. R. Radulski	Graduate Student	U.R.I.



Cruise No.: TR-016

Dates: 12 June - 3 July 1964

Area of Operation: Northwest  
Atlantic Ocean

Days at sea: 22

Funding: ONR

#### Program Description

The main purposes of this cruise were:

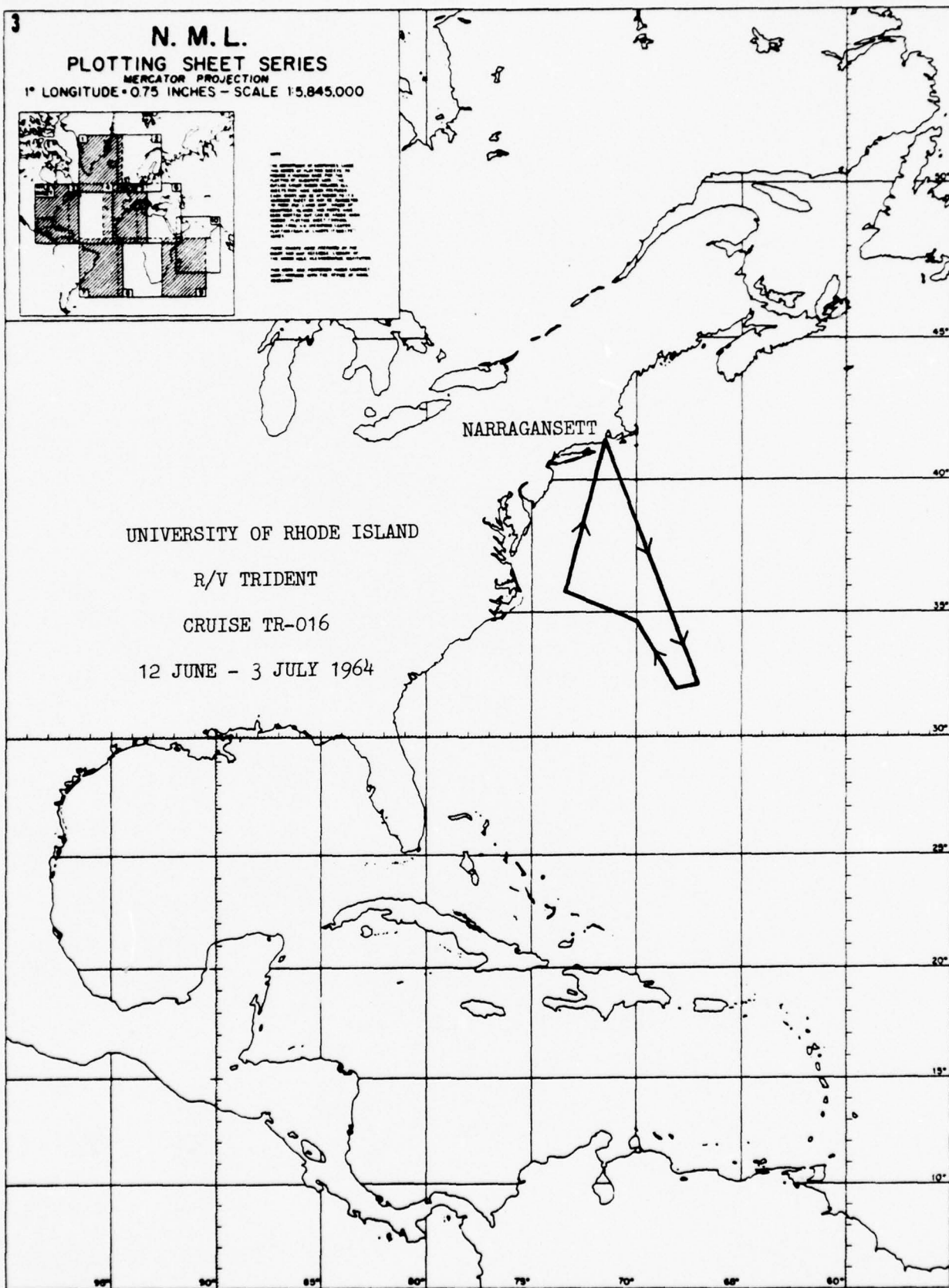
- a) to test a system for obtaining current meter measurements very near the bottom
- b) to track the Gulf Stream

#### Data Collected

- 1) four current meters were deployed and recovered
- 2) two hydrographic stations were occupied
- 3) three GEK measurements were made
- 4) one neutrally buoyant float was tracked

#### Participants

Dr. John A. Knauss	Chief Scientist	U.R.I.
Dr. Peter Wangersky	Assistant Professor	Yale University
Mr. Philip P. Bedard	Electronics Engineer	U.R.I.
Mr. Thomas D'Ambra	Oceanographic Specialist	U.R.I.
Mr. John Piety	Oceanographic Specialist	U.R.I.
Mr. Paul J. Peterson	Electronics Technician	U.R.I.
Mr. Thomas Baseler	Graduate Student	U.R.I.
Ms. Candace Oviatt	Graduate Student	U.R.I.
Mr. Sheldon Pratt	Graduate Student	U.R.I.
Mr. Gary Cohen	Student	Yale University
Mr. George Schreiber	Student	M.I.T.



Cruise No.: TR-017

Dates: 8 July 1964

Area of Operation: Northwest  
Atlantic Ocean

Days at sea: 1

Funding: NSF

Program Description

This was an orientation cruise of the NSF-sponsored summer institute at U.R.I. for high school biology teachers.

Data Collected

- 1) Test apparatus and instruments used for biology and geology were demonstrated

Participants

Dr. H. P. Jeffries  
Dr. J. T. Corless  
Dr. D. Schink  
Biology teachers

Chief Scientist  
Assistant Professor  
Assistant Professor

U.R.I.  
U.R.I.  
U.R.I.

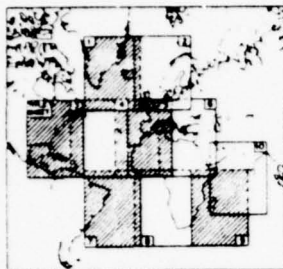
3

N. M. L.

## PLOTting SHEET SERIES

MERCATOR PROJECTION

1" LONGITUDE = 0.75 INCHES - SCALE 1:5,845,000



1. Name of vessel  
2. Name of commanding officer  
3. Name of observer  
4. Name of recorder  
5. Name of navigator  
6. Name of pilot  
7. Name of observer  
8. Name of recorder  
9. Name of navigator  
10. Name of pilot  
11. Name of observer  
12. Name of recorder  
13. Name of navigator  
14. Name of pilot  
15. Name of observer  
16. Name of recorder  
17. Name of navigator  
18. Name of pilot  
19. Name of observer  
20. Name of recorder  
21. Name of navigator  
22. Name of pilot  
23. Name of observer  
24. Name of recorder  
25. Name of navigator  
26. Name of pilot  
27. Name of observer  
28. Name of recorder  
29. Name of navigator  
30. Name of pilot  
31. Name of observer  
32. Name of recorder  
33. Name of navigator  
34. Name of pilot  
35. Name of observer  
36. Name of recorder  
37. Name of navigator  
38. Name of pilot  
39. Name of observer  
40. Name of recorder  
41. Name of navigator  
42. Name of pilot  
43. Name of observer  
44. Name of recorder  
45. Name of navigator  
46. Name of pilot  
47. Name of observer  
48. Name of recorder  
49. Name of navigator  
50. Name of pilot  
51. Name of observer  
52. Name of recorder  
53. Name of navigator  
54. Name of pilot  
55. Name of observer  
56. Name of recorder  
57. Name of navigator  
58. Name of pilot  
59. Name of observer  
60. Name of recorder  
61. Name of navigator  
62. Name of pilot  
63. Name of observer  
64. Name of recorder  
65. Name of navigator  
66. Name of pilot  
67. Name of observer  
68. Name of recorder  
69. Name of navigator  
70. Name of pilot  
71. Name of observer  
72. Name of recorder  
73. Name of navigator  
74. Name of pilot  
75. Name of observer  
76. Name of recorder  
77. Name of navigator  
78. Name of pilot  
79. Name of observer  
80. Name of recorder  
81. Name of navigator  
82. Name of pilot  
83. Name of observer  
84. Name of recorder  
85. Name of navigator  
86. Name of pilot  
87. Name of observer  
88. Name of recorder  
89. Name of navigator  
90. Name of pilot  
91. Name of observer  
92. Name of recorder  
93. Name of navigator  
94. Name of pilot  
95. Name of observer  
96. Name of recorder  
97. Name of navigator  
98. Name of pilot  
99. Name of observer  
100. Name of recorder

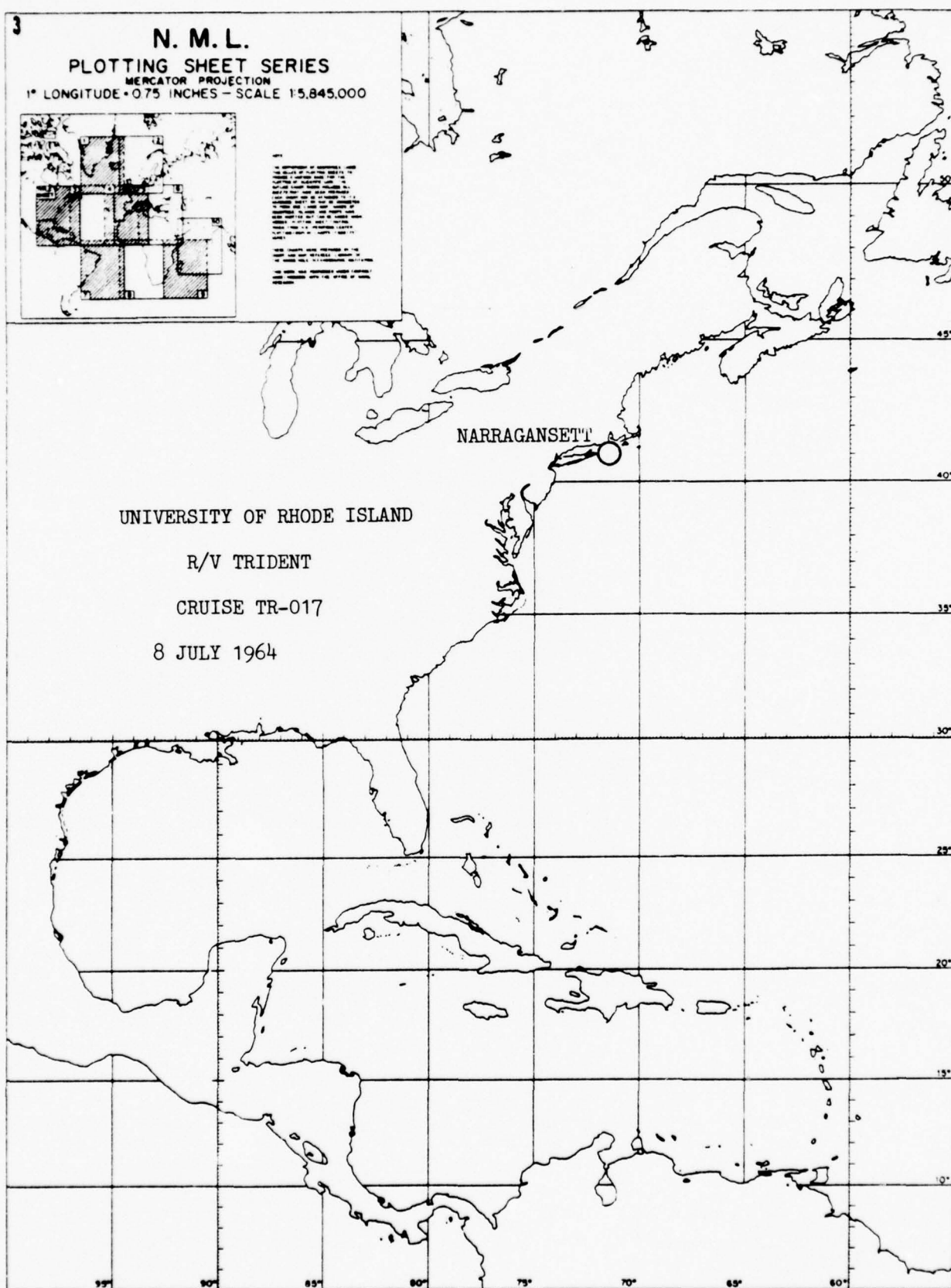
NARRAGANSETT

UNIVERSITY OF RHODE ISLAND

R/V TRIDENT

CRUISE TR-017

8 JULY 1964



Cruise No.: TR-018

Dates: 13 - 26 July 1964

Area of Operation: Northwest  
Atlantic Ocean

Days at sea: 14

Funding: ONR

#### Program Description

The major programs on this cruise were:

- a) to sample for future chemical analysis
- b) to run geophysical profiles

#### Data Collected

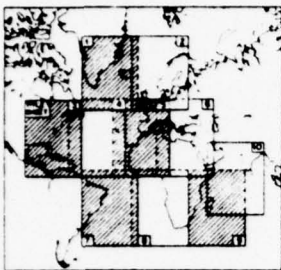
- 1) A number of water samples were collected for trace metals, organic and microplankton
- 2) 600 n.m. of bathymetric profiles were run
- 3) 150 n.m. of magnetics were obtained
- 4) 45 grab samples were taken

#### Participants

Dr. David Schink	Chief Scientist	U.R.I.
Dr. Peter Wangersky	Assistant Professor	Yale University
Mr. Benjamin Buglio	Marine Technician	U.R.I.
Mr. James Frey	Marine Technician	U.R.I.
Mr. Gary Cohen	Research Technician	U.R.I.
Mr. Wing Grist	Research Technician	U.R.I.
Mr. Robert Fournier	Graduate Student	U.R.I.
Mr. Bernard McAlice	Research Technician	U.R.I.
Mr. James Schwartz	Graduate Student	U.R.I.
Mr. Kenneth Wunschel	Research Technician	U.R.I.

3

N. M. L.  
PLOTING SHEET SERIES  
MERCATOR PROJECTION  
1" LONGITUDE = 0.75 INCHES - SCALE 1:5,845,000



NOTE: THIS MAP IS A REPRODUCTION OF THE N. M. L. PLOTING SHEET SERIES, WHICH IS A SERIES OF MAPS OF THE NORTH ATLANTIC OCEAN, PUBLISHED BY THE NATIONAL METEOROLOGICAL SERVICE, WASHINGTON, D. C. THE MAPS IN THIS SERIES ARE BASED ON THE MERCATOR PROJECTION, AND ARE DESIGNED FOR USE IN THE N. M. L. PLOTING SHEET SERIES.

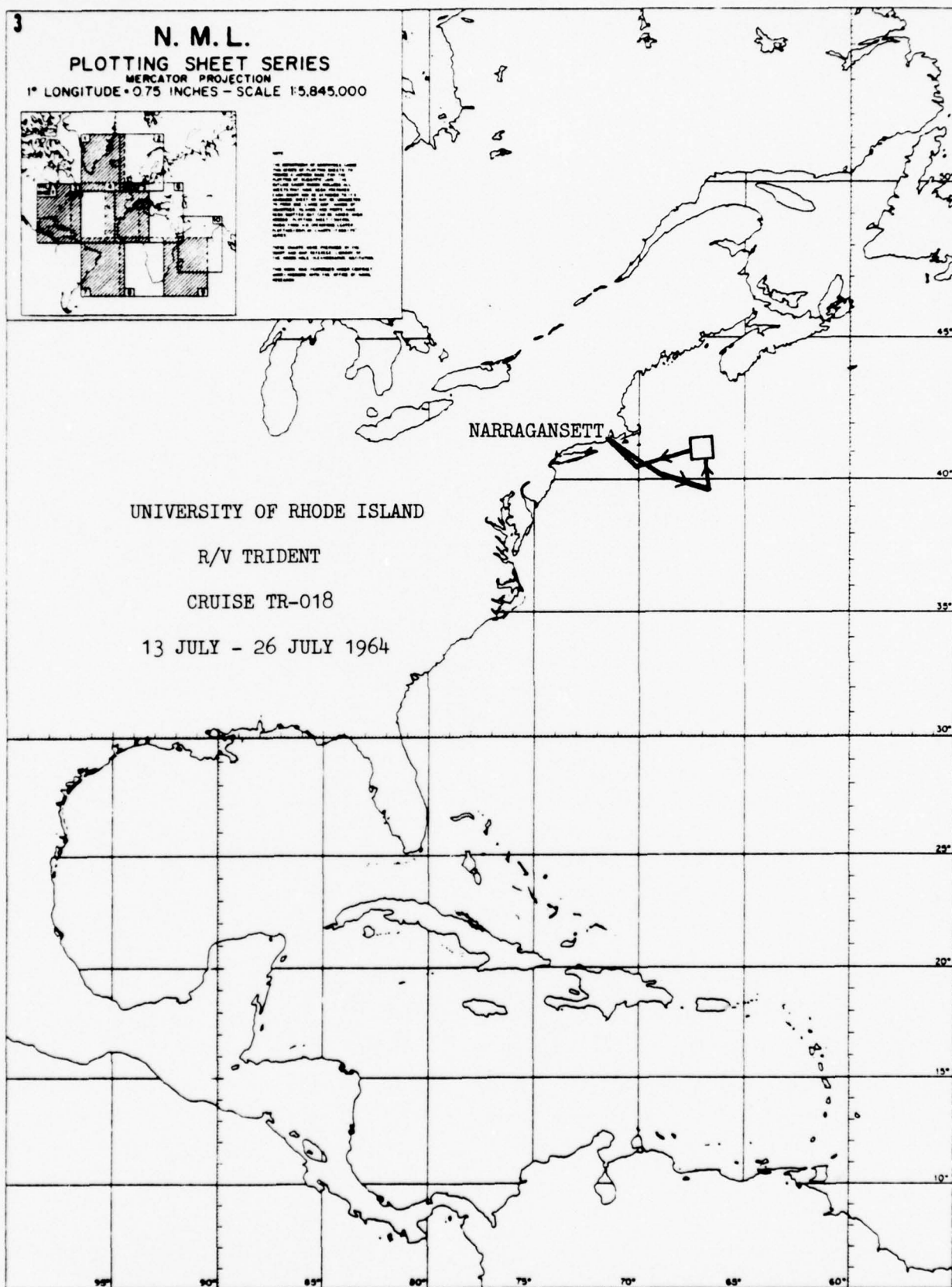
NARRAGANSETT

UNIVERSITY OF RHODE ISLAND

R/V TRIDENT

CRUISE TR-018

13 JULY - 26 JULY 1964



Cruise No.: TR-019

Dates: 4 - 19 August 1964

Area of Operation: Northwest  
Atlantic Ocean

Days at sea: 14

Funding: ONR

#### Program Description

The major programs on this cruise were:

- a) to perform biological studies in the subtropical Atlantic Ocean
- b) to run bioacoustic studies

#### Data Collected

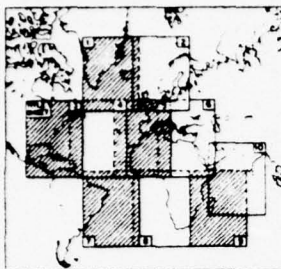
- 1) four hydrographic stations were occupied
- 2) five oblique hauls were recovered
- 3) bioacoustic stations were run

#### Participants

Dr. Charles J. Fish	Co-Chief Scientist	U.R.I.
Dr. Marie P. Fish	Co-Chief Scientist	U.R.I.
Dr. Theodore A. Napor	Assistant Professor	U.R.I.
Dr. Peter Wangersky	Assistant Professor	Yale University
Mr. Paul J. Perkins	Oceanographic Specialist	U.R.I.
Mr. David K. Roebuck	Oceanographic Specialist	U.R.I.
Mr. Thomas S. D'Ambra	Marine Technician	U.R.I.
Mr. Gary Cohen	Graduate Student	U.R.I.
Mr. James F. Fish	Graduate Student	U.R.I.
Mr. David Giuliano	Graduate Student	U.R.I.
Mr. Ellsworth Wheeler	Graduate Student	U.R.I.

3

N. M. L.  
PLOTting SHEET SERIES  
MERCATOR PROJECTION  
1" LONGITUDE = 0.75 INCHES - SCALE 1:5,845,000



1. NAME OF VESSEL  
2. NAME OF COMMANDER  
3. NAME OF CAPTAIN  
4. NAME OF FIRST OFFICER  
5. NAME OF SECOND OFFICER  
6. NAME OF THIRD OFFICER  
7. NAME OF FOURTH OFFICER  
8. NAME OF FIFTH OFFICER  
9. NAME OF SIXTH OFFICER  
10. NAME OF SEVENTH OFFICER  
11. NAME OF EIGHTH OFFICER  
12. NAME OF NINTH OFFICER  
13. NAME OF TENTH OFFICER  
14. NAME OF ELEVENTH OFFICER  
15. NAME OF TWELFTH OFFICER  
16. NAME OF THIRTEENTH OFFICER  
17. NAME OF FOURTEENTH OFFICER  
18. NAME OF FIFTEENTH OFFICER  
19. NAME OF SIXTEENTH OFFICER  
20. NAME OF SEVENTEENTH OFFICER  
21. NAME OF EIGHTEENTH OFFICER  
22. NAME OF NINETEENTH OFFICER  
23. NAME OF TWENTIETH OFFICER  
24. NAME OF TWENTY-FIRST OFFICER  
25. NAME OF TWENTY-SECOND OFFICER  
26. NAME OF TWENTY-THIRD OFFICER  
27. NAME OF TWENTY-FOURTH OFFICER  
28. NAME OF TWENTY-FIFTH OFFICER  
29. NAME OF TWENTY-SIXTH OFFICER  
30. NAME OF TWENTY-SEVENTH OFFICER  
31. NAME OF TWENTY-EIGHTH OFFICER  
32. NAME OF TWENTY-NINTH OFFICER  
33. NAME OF THIRTIETH OFFICER  
34. NAME OF THIRTY-FIRST OFFICER  
35. NAME OF THIRTY-SECOND OFFICER  
36. NAME OF THIRTY-THIRD OFFICER  
37. NAME OF THIRTY-FOURTH OFFICER  
38. NAME OF THIRTY-FIFTH OFFICER  
39. NAME OF THIRTY-SIXTH OFFICER  
40. NAME OF THIRTY-SEVENTH OFFICER  
41. NAME OF THIRTY-EIGHTH OFFICER  
42. NAME OF THIRTY-NINTH OFFICER  
43. NAME OF FORTIETH OFFICER  
44. NAME OF FORTY-FIRST OFFICER  
45. NAME OF FORTY-SECOND OFFICER  
46. NAME OF FORTY-THIRD OFFICER  
47. NAME OF FORTY-FOURTH OFFICER  
48. NAME OF FORTY-FIFTH OFFICER  
49. NAME OF FORTY-SIXTH OFFICER  
50. NAME OF FORTY-SEVENTH OFFICER  
51. NAME OF FORTY-EIGHTH OFFICER  
52. NAME OF FORTY-NINTH OFFICER  
53. NAME OF FIFTIETH OFFICER  
54. NAME OF FIFTY-FIRST OFFICER  
55. NAME OF FIFTY-SECOND OFFICER  
56. NAME OF FIFTY-THIRD OFFICER  
57. NAME OF FIFTY-FOURTH OFFICER  
58. NAME OF FIFTY-FIFTH OFFICER  
59. NAME OF FIFTY-SIXTH OFFICER  
60. NAME OF FIFTY-SEVENTH OFFICER  
61. NAME OF FIFTY-EIGHTH OFFICER  
62. NAME OF FIFTY-NINTH OFFICER  
63. NAME OF SIXTIETH OFFICER  
64. NAME OF SIXTY-FIRST OFFICER  
65. NAME OF SIXTY-SECOND OFFICER  
66. NAME OF SIXTY-THIRD OFFICER  
67. NAME OF SIXTY-FOURTH OFFICER  
68. NAME OF SIXTY-FIFTH OFFICER  
69. NAME OF SIXTY-SIXTH OFFICER  
70. NAME OF SIXTY-SEVENTH OFFICER  
71. NAME OF SIXTY-EIGHTH OFFICER  
72. NAME OF SIXTY-NINTH OFFICER  
73. NAME OF SEVENTIETH OFFICER  
74. NAME OF SEVENTY-FIRST OFFICER  
75. NAME OF SEVENTY-SECOND OFFICER  
76. NAME OF SEVENTY-THIRD OFFICER  
77. NAME OF SEVENTY-FOURTH OFFICER  
78. NAME OF SEVENTY-FIFTH OFFICER  
79. NAME OF SEVENTY-SIXTH OFFICER  
80. NAME OF SEVENTY-SEVENTH OFFICER  
81. NAME OF SEVENTY-EIGHTH OFFICER  
82. NAME OF SEVENTY-NINTH OFFICER  
83. NAME OF EIGHTIETH OFFICER  
84. NAME OF EIGHTY-FIRST OFFICER  
85. NAME OF EIGHTY-SECOND OFFICER  
86. NAME OF EIGHTY-THIRD OFFICER  
87. NAME OF EIGHTY-FOURTH OFFICER  
88. NAME OF EIGHTY-FIFTH OFFICER  
89. NAME OF EIGHTY-SIXTH OFFICER  
90. NAME OF EIGHTY-SEVENTH OFFICER  
91. NAME OF EIGHTY-EIGHTH OFFICER  
92. NAME OF EIGHTY-NINTH OFFICER  
93. NAME OF NINETYETH OFFICER  
94. NAME OF NINETY-FIRST OFFICER  
95. NAME OF NINETY-SECOND OFFICER  
96. NAME OF NINETY-THIRD OFFICER  
97. NAME OF NINETY-FOURTH OFFICER  
98. NAME OF NINETY-FIFTH OFFICER  
99. NAME OF NINETY-SIXTH OFFICER  
100. NAME OF NINETY-SEVENTH OFFICER  
101. NAME OF NINETY-EIGHTH OFFICER  
102. NAME OF NINETY-NINTH OFFICER  
103. NAME OF HUNDRETH OFFICER

UNIVERSITY OF RHODE ISLAND

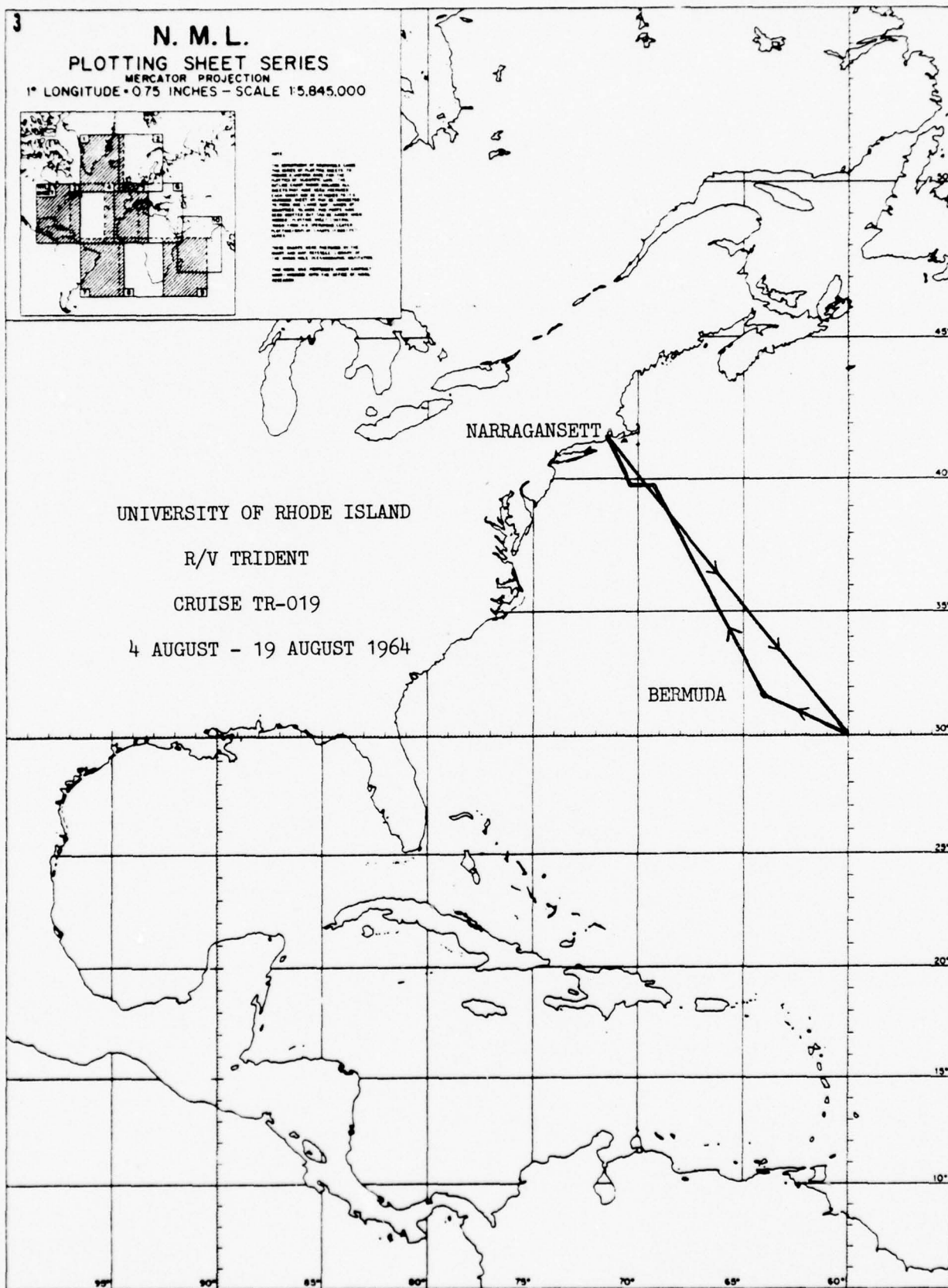
R/V TRIDENT

CRUISE TR-019

4 AUGUST - 19 AUGUST 1964

NARRAGANSETT

BERMUDA



Cruise No.: TR-020

Dates: 26 August - 2 September 1964      Area of Operation: Northwest  
Atlantic Ocean

Days at sea: 8

Funding: ONR

#### Program Description

The primary objective of this cruise was:

- a) to study the primary productivity across the Gulf Stream into the Sargasso Sea

#### Data Collected

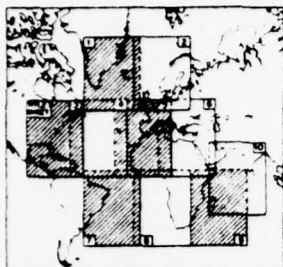
- 1) four stations were occupied for nutrient enrichment studies
- 2) biological surface samples were collected along the track
- 3) samples were taken along a 100-mile transect for bacteriological analysis

#### Participants

Dr. Theodore J. Smayda	Chief Scientist	U.R.I.
Ms. Brenda J. Boleyn	Research Assistant	U.R.I.
Mr. James Frey	Marine Technician	U.R.I.
Mr. John Piety	Marine Technician	U.R.I.
Mr. Robert O. Fournier	Graduate Student	U.R.I.
Mr. George Hoskins	Graduate Student	U.R.I.
Mr. Robert Murchelano	Graduate Student	U.R.I.
Mr. Kenneth Wunschel	Graduate Student	U.R.I.

3

N. M. L.  
PLOTING SHEET SERIES  
MERCATOR PROJECTION  
1" LONGITUDE = 0.75 INCHES - SCALE 1:5,845,000



1. Symbols for land, water, and other features are shown in the legend.

2. The map is drawn on a Mercator projection, which preserves local shapes and angles.

3. The scale is 1 inch = 0.75 degrees of longitude, or 1:5,845,000.

4. The map covers the area from 10°N to 45°N latitude and 95°W to 60°W longitude.

5. The map is divided into 1-degree squares, which are labeled with their respective coordinates.

6. The map is drawn on a grid, which is used to locate points and features.

7. The map is drawn on a grid, which is used to locate points and features.

8. The map is drawn on a grid, which is used to locate points and features.

9. The map is drawn on a grid, which is used to locate points and features.

10. The map is drawn on a grid, which is used to locate points and features.

NARRAGANSETT

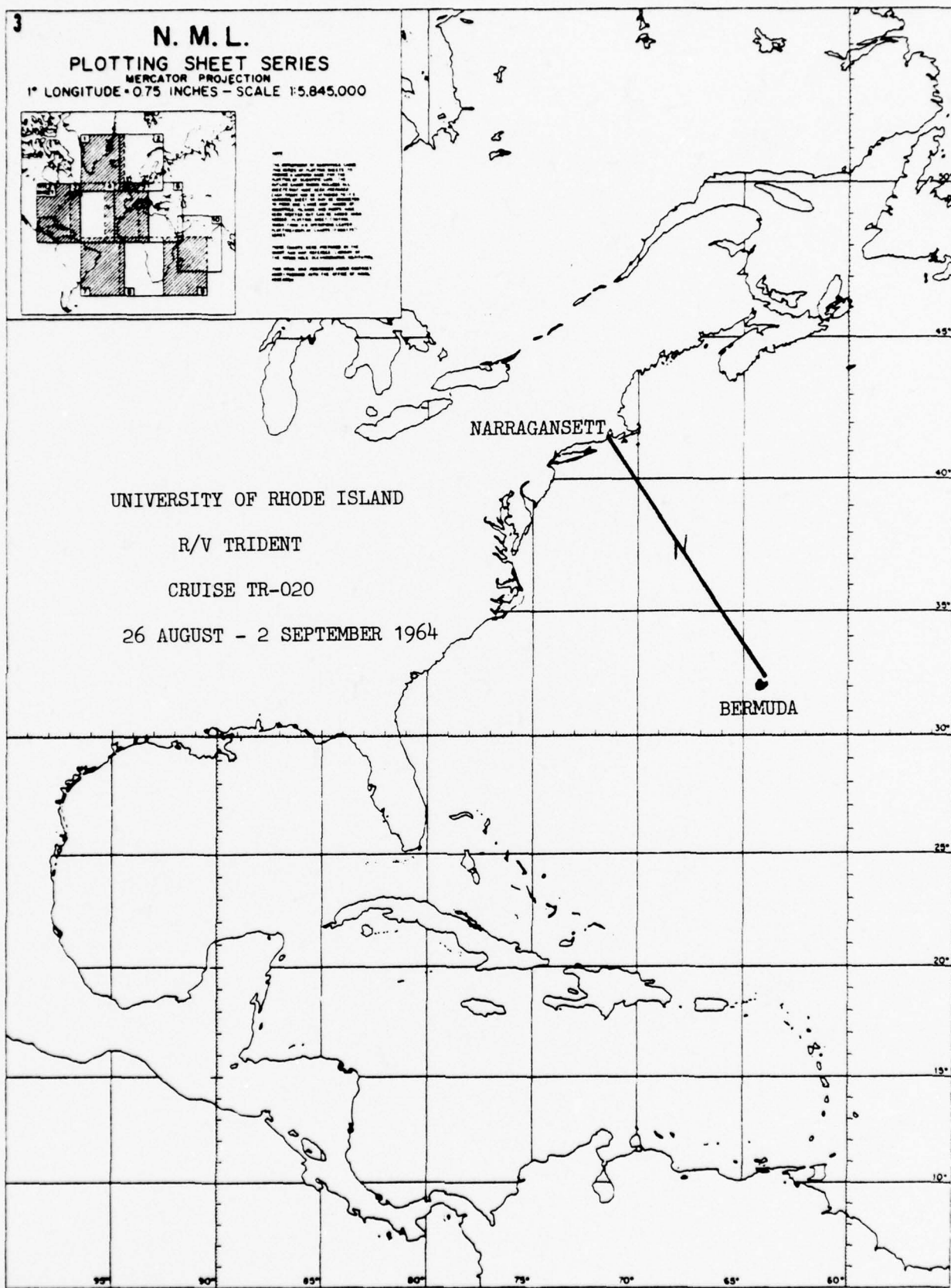
UNIVERSITY OF RHODE ISLAND

R/V TRIDENT

CRUISE TR-020

26 AUGUST - 2 SEPTEMBER 1964

BERMUDA



Cruise No.: TR-021

Dates: 16 September - 3 November 1964      Area of Operation: North  
Atlantic Ocean

Days at sea: 47

Funding: ONR

#### Program Description

The primary objectives of this cruise were:

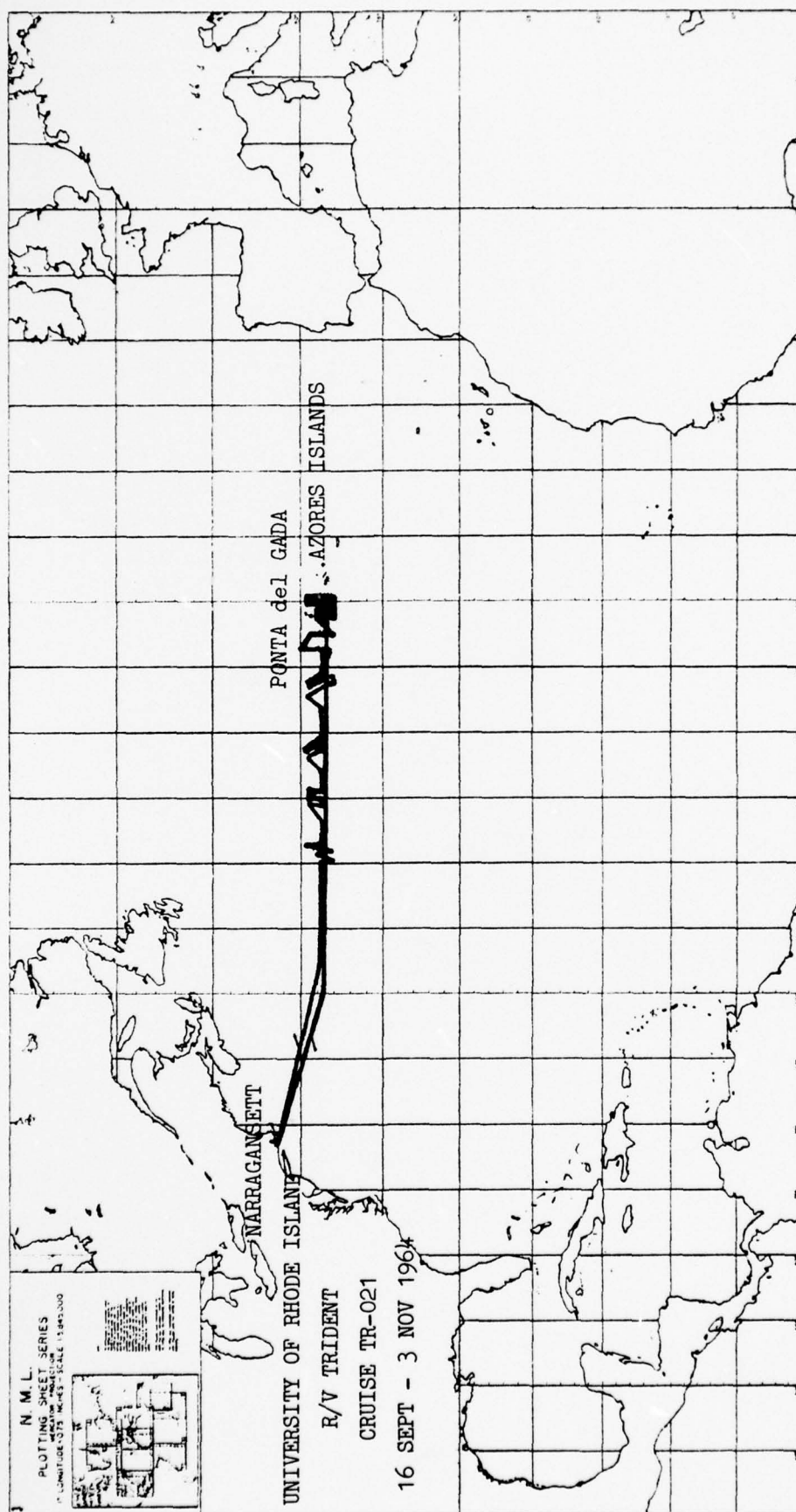
- a) to study the geological, geophysical, geochemical and biological characteristics from Rhode Island to the Azores Islands

#### Data Collected

- 1) 8,460 n.m. of bathymetric profiles were run
- 2) 8,200 n.m. of magnetic lines were taken
- 3) nine grabs were recovered
- 4) ten cores were taken
- 5) two dredge stations were occupied
- 6) 14 hydrographic stations were taken
- 7) net tows were made daily

#### Participants

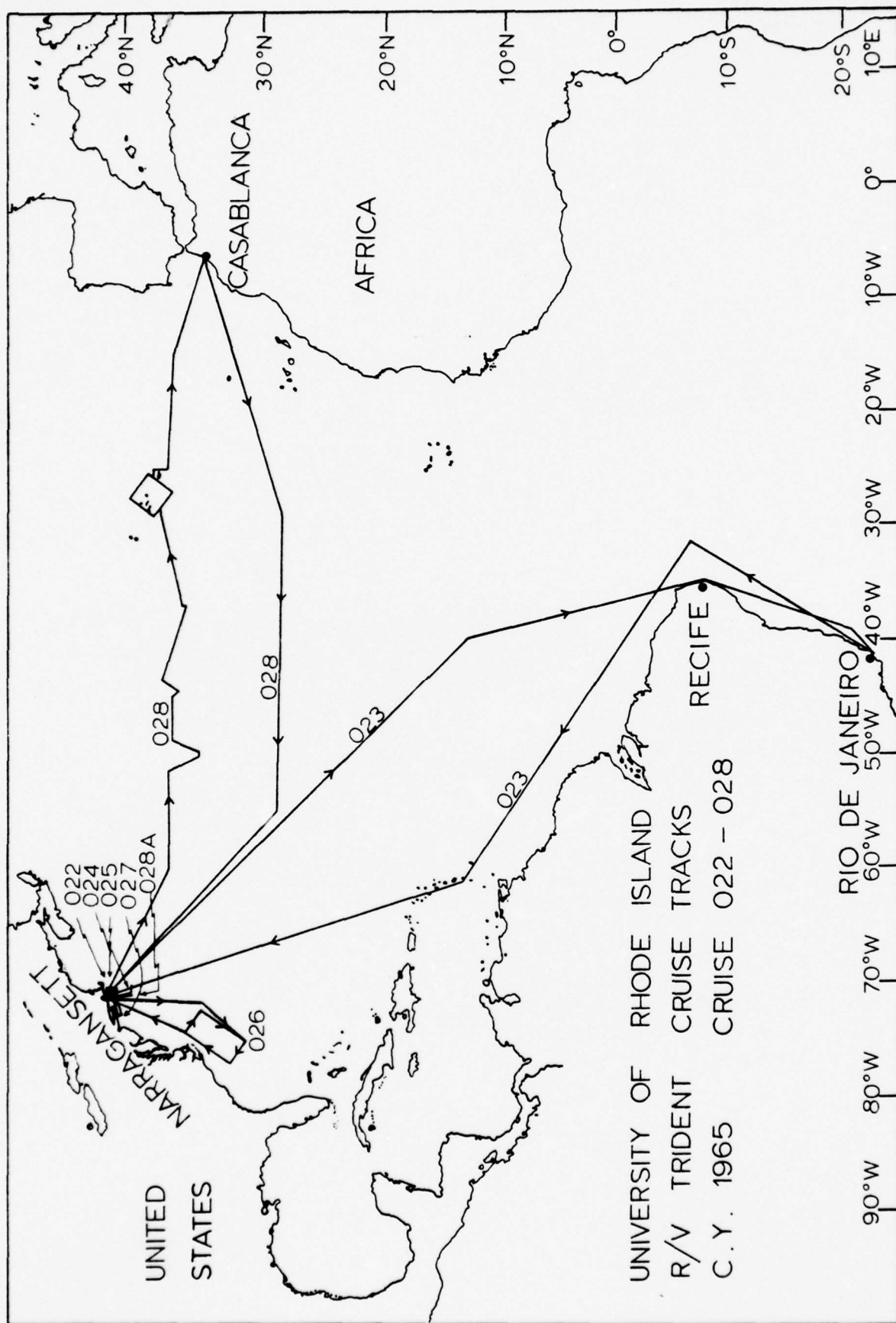
Dr. David Schink	Co-Chief Scientist	U.R.I.
Dr. Dale Krause	Co-Chief Scientist	U.R.I.
Mr. Thomas D'Ambra	Marine Technician	U.R.I.
Mr. James Frey	Marine Technician	U.R.I.
Mr. John Piety	Marine Technician	U.R.I.
Mr. Kent Fanning	Graduate Student	U.R.I.
Mr. Clifford Schink	Student	U.R.I.



R/V TRIDENT Cruises - CY 1965

Cruise No.	Dates	Days at Sea	Area of Operation	Chief Scientist/ Affiliation*
022	27-28 Feb.	2	Rhode Island Sound	Baseler
023	8 Mar. - 15 June	95	NW Atlantic, SW Atlantic	Napora
024	28 June - 2 July	5	NW Atlantic	Krause, Chromiec
025	9 July	1	NW Atlantic	Jeffries
026	13 July - 13 Aug.	32	NW Atlantic	Knauss
027	19 Aug. - 2 Sept.	15	NW Atlantic	McMaster
028A	8-10 Oct.	3	NW Atlantic	Krause
028	11 Oct. - 20 Dec.	66	North Atlantic	Krause

\*A11 GSO/URI



Cruise No.: TR-022

Dates: 27 - 28 February

Area of Operation: Rhode Island  
Sound

Days at sea: 2

Funding: ONR

#### Program Description

The main purposes of this cruise were

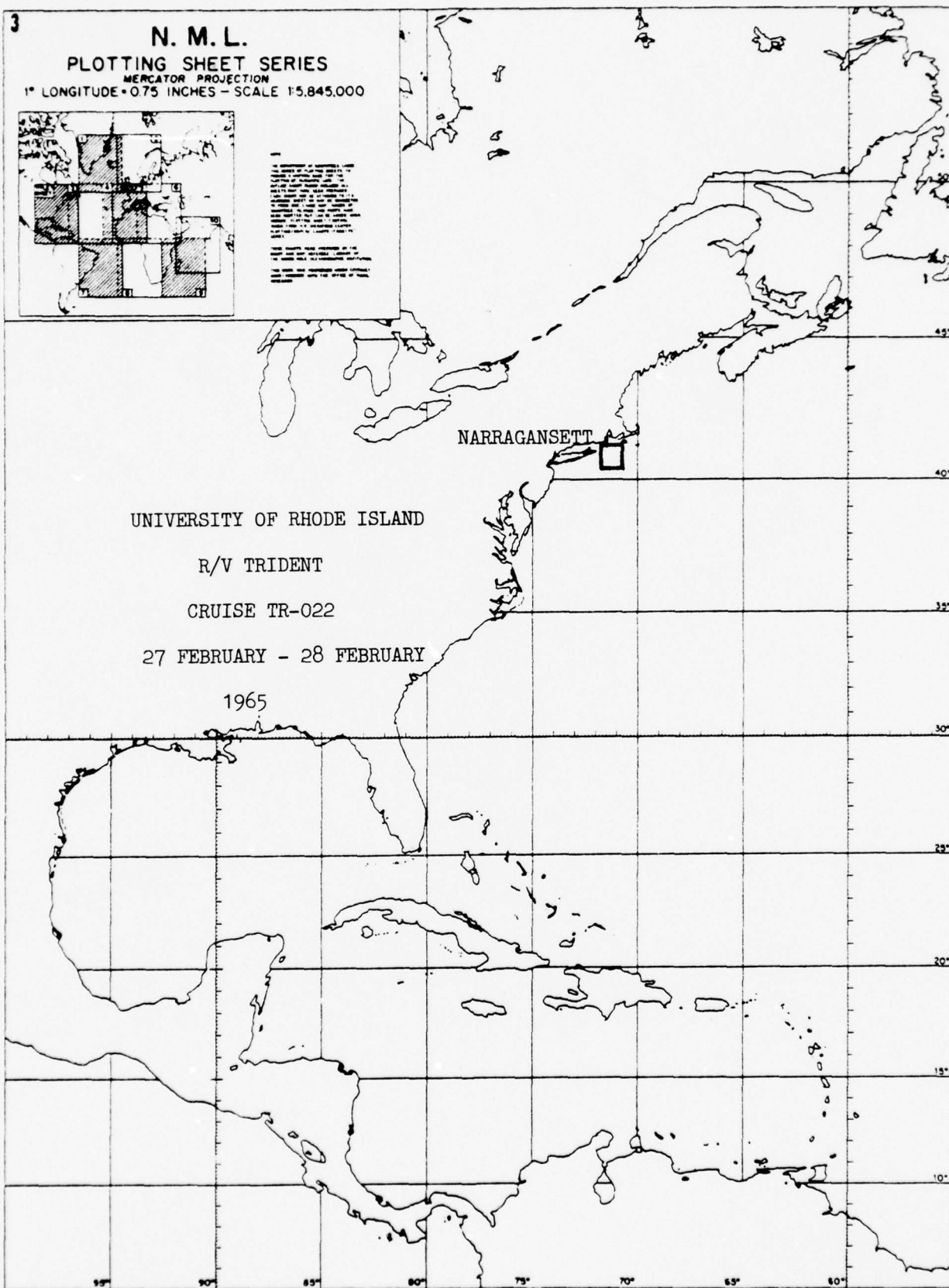
- a) to investigate the basement structure and geophysical properties in Rhode Island Sound

#### Data Collected

- 1) 230 n.m. each of bathymetric and magnetic profiles were run
- 2) 55 n.m. of seismic reflection profiles were collected

#### Participants

Mr. Thomas W. Baseler	Chief Scientist	U.R.I.
Dr. Dale C. Krause	Assistant Professor	U.R.I.
Mr. Philip Bedard	Electronics Engineer	U.R.I.
Mr. Gino Mecarini	Oceanographic Specialist	U.R.I.
Mr. Paul Peterson	Oceanographic Specialist	U.R.I.
Mr. Steven Chelminski	Scientist	Bolt Associates
Mr. Donald J. Corrigan	Graduate Student	U.R.I.
Mr. Martin F. McDonald	Graduate Student	U.R.I.
Mr. Robert Radulski	Graduate Student	U.R.I.
Mr. James Robb	Graduate Student	U.R.I.
Mr. James Schwartz	Graduate Student	U.R.I.



Cruise No.: TR-023

Dates: 8 March - 15 June 1965

Area of Operation: Northwest and  
Southwest  
Atlantic Oceans

Days at sea: 95

Funding: ONR, NSF

#### Program Description

The main purposes of this cruise were:

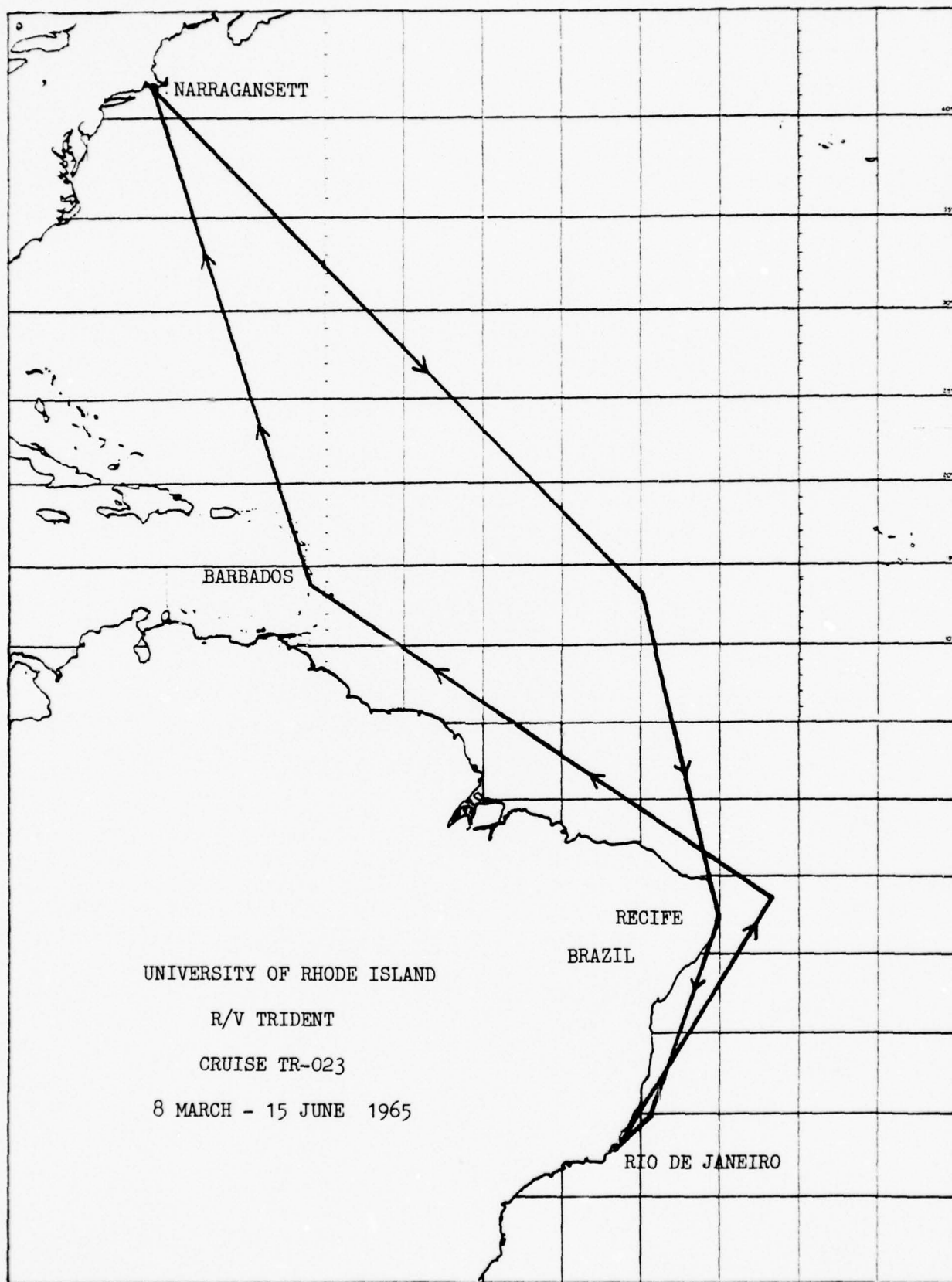
- a) to study plankton and silicon occurrence and distribution from the North to South Atlantic
- b) to run bioacoustic studies for whales
- c) to use bathymetry to study the eastern extension of the Barracuda Fault

#### Data Collected

- 1) 25 net tows were recovered
- 2) bioacoustic stations were occupied
- 3) bathymetry and magnetic profiles were run

#### Participants

Dr. Theodore Napora	Chief Scientist	U.R.I.
Dr. C. J. Fish	Professor	U.R.I.
Dr. D. M. Pratt	Professor	U.R.I.
Mr. Paul Perkins	Oceanographic Specialist	U.R.I.
Mr. Robert Fournier	Graduate Student	U.R.I.
Mr. Donald Gordon	Graduate Student	U.R.I.
Mr. Elijah Swift	Graduate Student	U.R.I.
Mr. Ellsworth Wheeler	Graduate Student	U.R.I.
Mr. Kenneth Wunschel	Graduate Student	U.R.I.



Cruise No.: TR-024

Dates: 28 June - 2 July 1965

Area of Operation: Northwest  
Atlantic Ocean

Days at sea: 5

Funding: ONR

#### Program Description

The main purpose of this cruise was

- a) to familiarize oceanographic students with shipboard scientific techniques

#### Data Collected

- 1) The following experiments were run: plankton sampling, trawls, neuston tows, hydrocasts, MBT's, echo studies, bathymetry, coring and bioacoustic recording

#### Participants

Dr. D. Krause	Co-Chief Scientist	U.R.I.
Mr. M. Chramiec	Co-Chief Scientist	U.R.I.
Ms. L. Alzara	Graduate Student	U.R.I.
Mr. J. Fish	Graduate Student	U.R.I.
Mr. J. Frey	Graduate Student	U.R.I.
Mr. L. Huff	Graduate Student	U.R.I.
Mr. L. Igniatades	Graduate Student	U.R.I.
Ms. B. McGregor	Graduate Student	U.R.I.
Mr. J. Pesch	Graduate Student	U.R.I.
Mr. G. Walsh	Graduate Student	U.R.I.
Mr. R. Wilcox	Graduate Student	U.R.I.

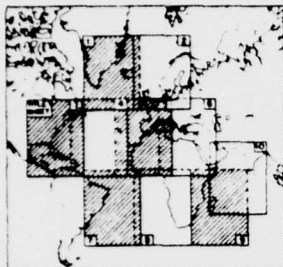
3

N. M. L.

## PLOTting SHEET SERIES

MERCATOR PROJECTION

1" LONGITUDE = 0.75 INCHES - SCALE 1:5,845,000



1. All depths are in fathoms unless otherwise indicated.  
2. All soundings are based on the mean low water level.  
3. All depths are based on the mean low water level.  
4. All depths are based on the mean low water level.  
5. All depths are based on the mean low water level.  
6. All depths are based on the mean low water level.  
7. All depths are based on the mean low water level.  
8. All depths are based on the mean low water level.  
9. All depths are based on the mean low water level.  
10. All depths are based on the mean low water level.

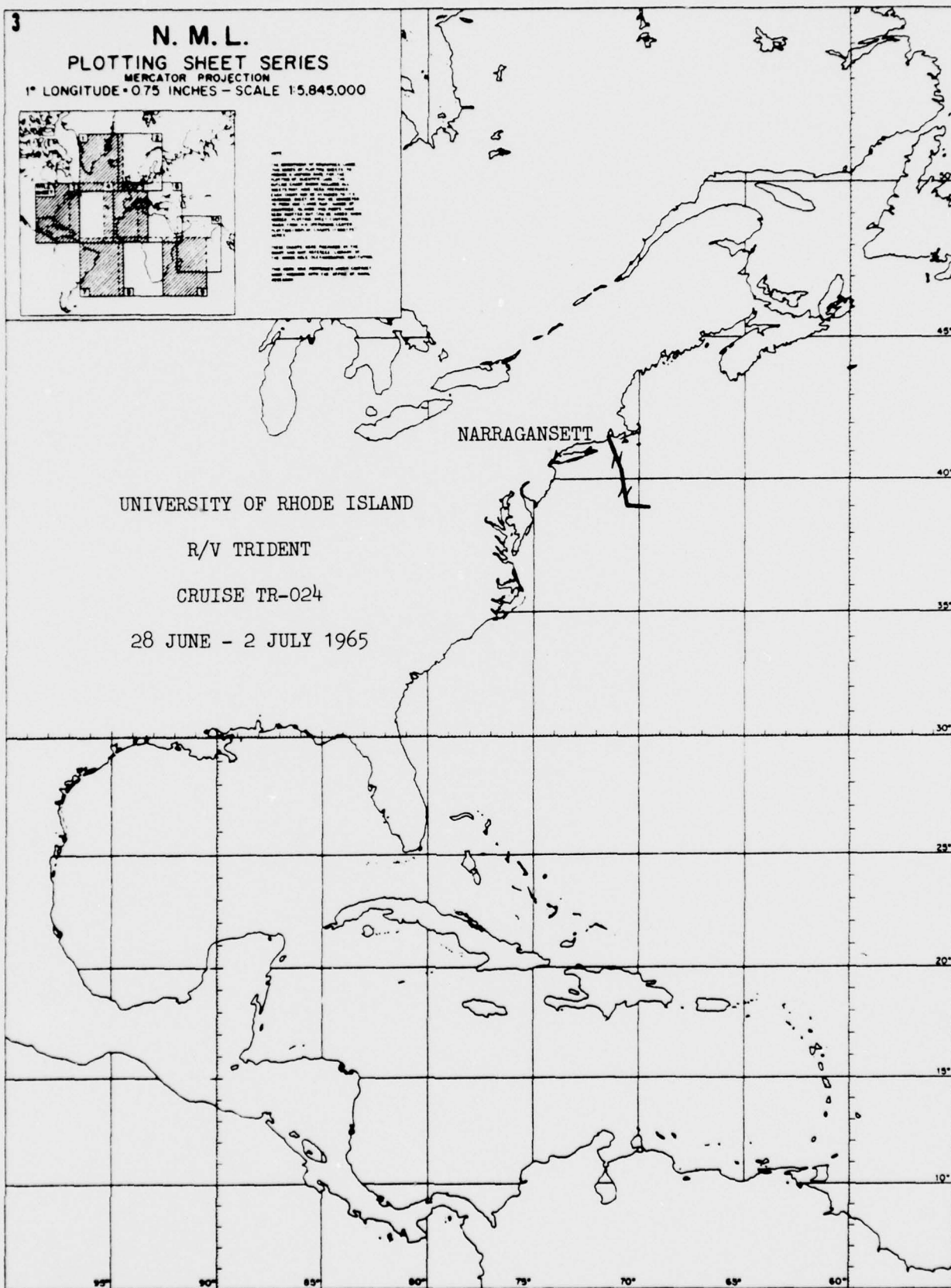
NARRAGANSETT

UNIVERSITY OF RHODE ISLAND

R/V TRIDENT

CRUISE TR-024

28 JUNE - 2 JULY 1965



Cruise No.: TR-025

Dates: 9 July 1965

Area of Operation: Northwest  
Atlantic Ocean

Days at sea: 1

Funding: NSF

Program Description

The main purpose of this cruise was

- a) an orientation for an NSF-sponsored summer institute for high school biology teachers

Data Collected

- 1) Equipment demonstrated

No samples collected

Participants

Dr. H. P. Jeffries  
Biology teachers

Chief Scientist

U.R.I.

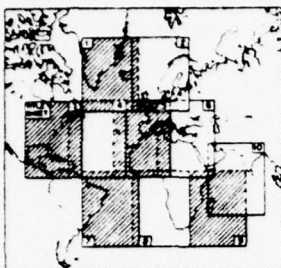
3

N. M. L.

## PLOTting SHEET SERIES

MERCATOR PROJECTION

1° LONGITUDE = 0.75 INCHES - SCALE 1:5,845,000



NOTE: This map is a reproduction of the original map. It is not to be used for navigation. It is intended for use as a reference map only. The map is not to be used for navigation. It is intended for use as a reference map only. The map is not to be used for navigation. It is intended for use as a reference map only.

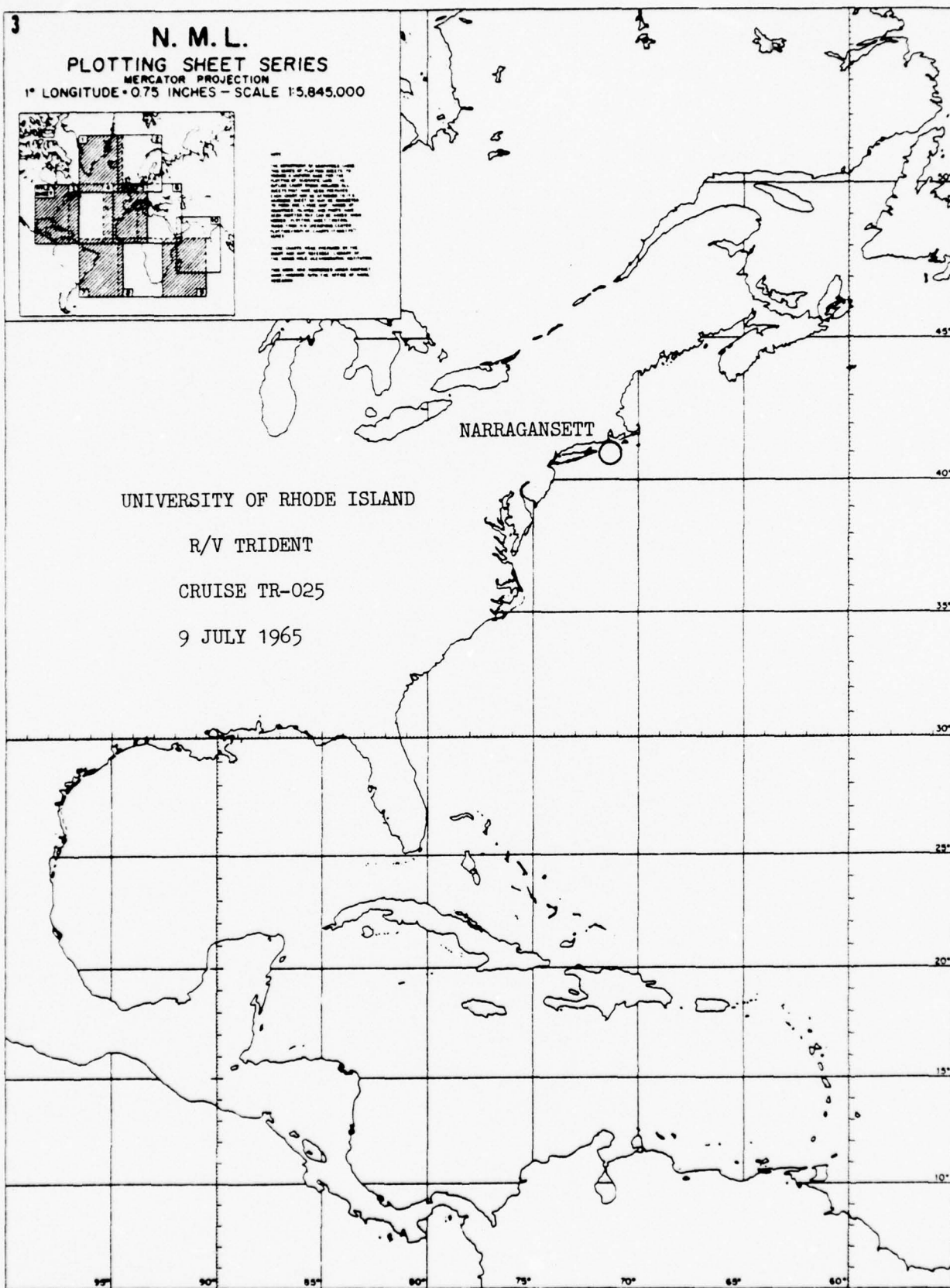
NARRAGANSETT

UNIVERSITY OF RHODE ISLAND

R/V TRIDENT

CRUISE TR-025

9 JULY 1965



Cruise No.: TR-026

Dates: 13 July - 13 August 1965

Area of Operation: Northwest  
Atlantic Ocean

Days at sea: 32

Funding: ONR

#### Program Description

The main purpose of this cruise was

- a) to measure the physical characteristics of the Gulf Stream by studying the transport and near-bottom currents

#### Data Collected

- 1) 24 hydrographic stations were occupied
- 2) 51 transport measurements were made
- 3) 16 bottom current meters were deployed
- 4) 16 GEK runs were made

#### Participants

Dr. John A. Knauss	Chief Scientist	U.R.I.
Mr. Philip P. Bedard	Electronics Engineer	U.R.I.
Mr. Wing Grist	Oceanographic Specialist	U.R.I.
Mr. John Piety	Oceanographic Specialist	U.R.I.
Mr. Paul J. Peterson	Electronics Technician	U.R.I.
Mr. Franz Van De Kop	Engineer	General Precision- Decca Corp.
Mr. William Durgin	Graduate Student	U.R.I.
Mr. Gino Mecarini	Graduate Student	U.R.I.
Mr. Thomas Osborne	Graduate Student	S.I.O.
Mr. Robert K. Sexton	Graduate Student	U.R.I.
Mr. Georges L. Weatherly	Graduate Student	Harvard University

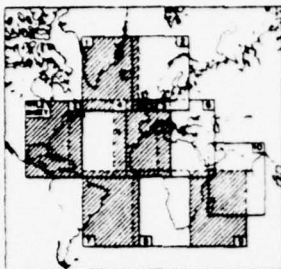
3

N. M. L.

PLOTING SHEET SERIES

MERCATOR PROJECTION

1" LONGITUDE = 0.75 INCHES - SCALE 1:5,845,000



1. Symbols for land, water, and other features.  
2. Symbols for ships and aircraft.  
3. Symbols for weather and other atmospheric conditions.  
4. Symbols for time and other data.  
5. Symbols for other information.

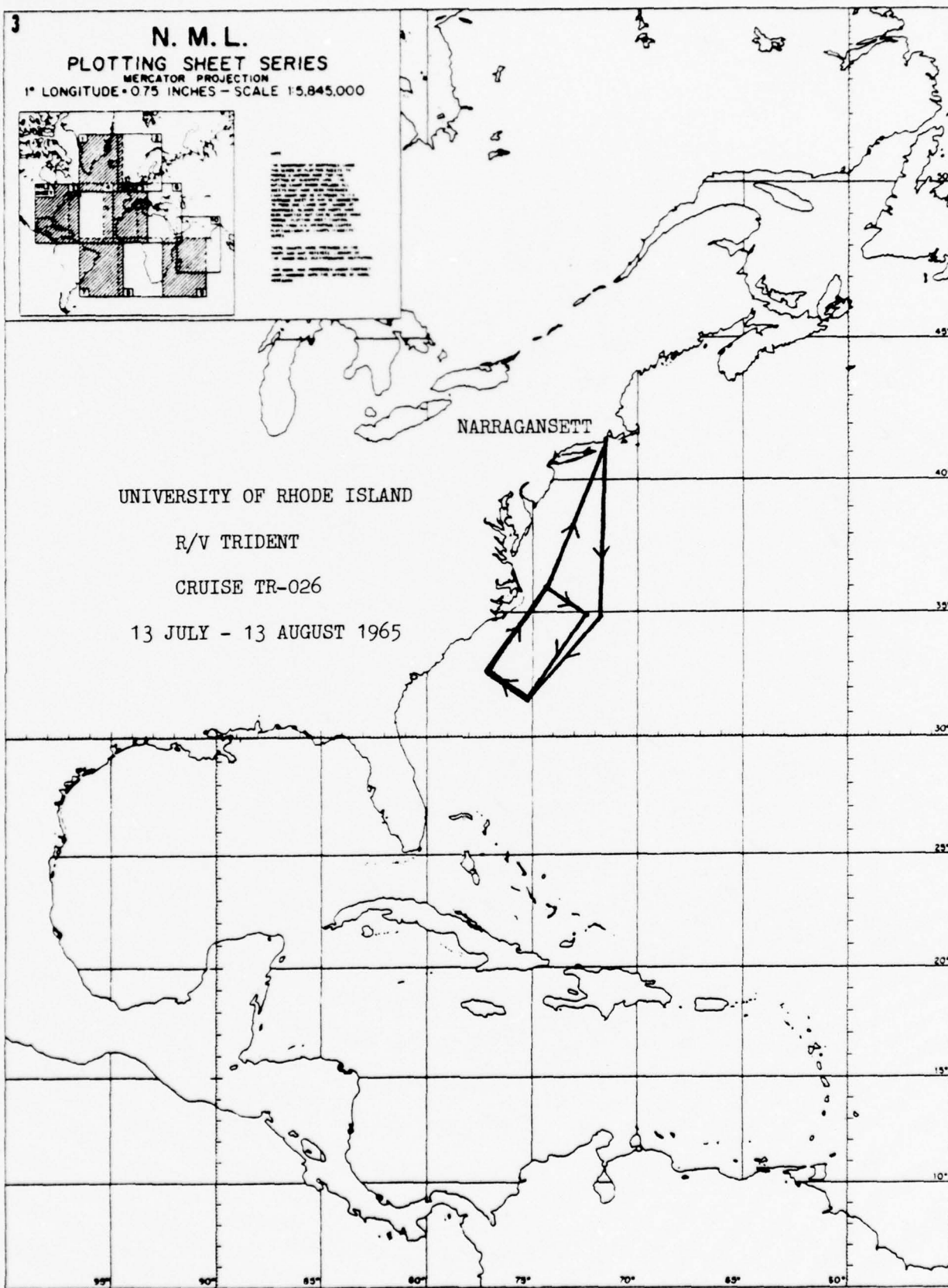
NARRAGANSETT

UNIVERSITY OF RHODE ISLAND

R/V TRIDENT

CRUISE TR-026

13 JULY - 13 AUGUST 1965



Cruise No.: TR-027

Dates: 19 August - 2 September 1965      Area of Operation: Northwest  
Atlantic Ocean

Days at sea: 15

Funding: ONR

#### Program Description

The main purposes of this cruise were

- a) to conduct geological and geophysical studies of the continental shelf off New England

#### Data Collected

- 1) 1,200 n.m. of bathymetric profiles were run
- 2) 950 n.m. of magnetic lines were run
- 3) 435 n.m. of seismic reflection lines were run
- 4) 17 grabs were collected
- 5) 19 cores were taken
- 6) two dredges were recovered
- 7) 10 seabed drifters were deployed

#### Participants

Dr. Robert L. McMaster	Chief Scientist	U.R.I.
Mr. Louis E. Garrison	Graduate Student	U.R.I.
Mr. William P. Dillon	Graduate Student	U.R.I.
Mr. Sheldon Pratt	Graduate Student	U.R.I.
Mr. Ronald Smith	Graduate Student	U.R.I.
Mr. John Piety	Oceanographic Specialist	U.R.I.

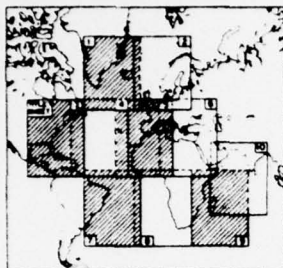
3

N. M. L.

## PLOTting SHEET SERIES

MERCATOR PROJECTION

1" LONGITUDE = 0.75 INCHES - SCALE 1:5,845,000



NOTE: This sheet is a reproduction of the original map. It is not to be used for navigation. It is intended for use as a reference only. The map is a reproduction of the original map and is not to be used for navigation. It is intended for use as a reference only. The map is a reproduction of the original map and is not to be used for navigation. It is intended for use as a reference only.

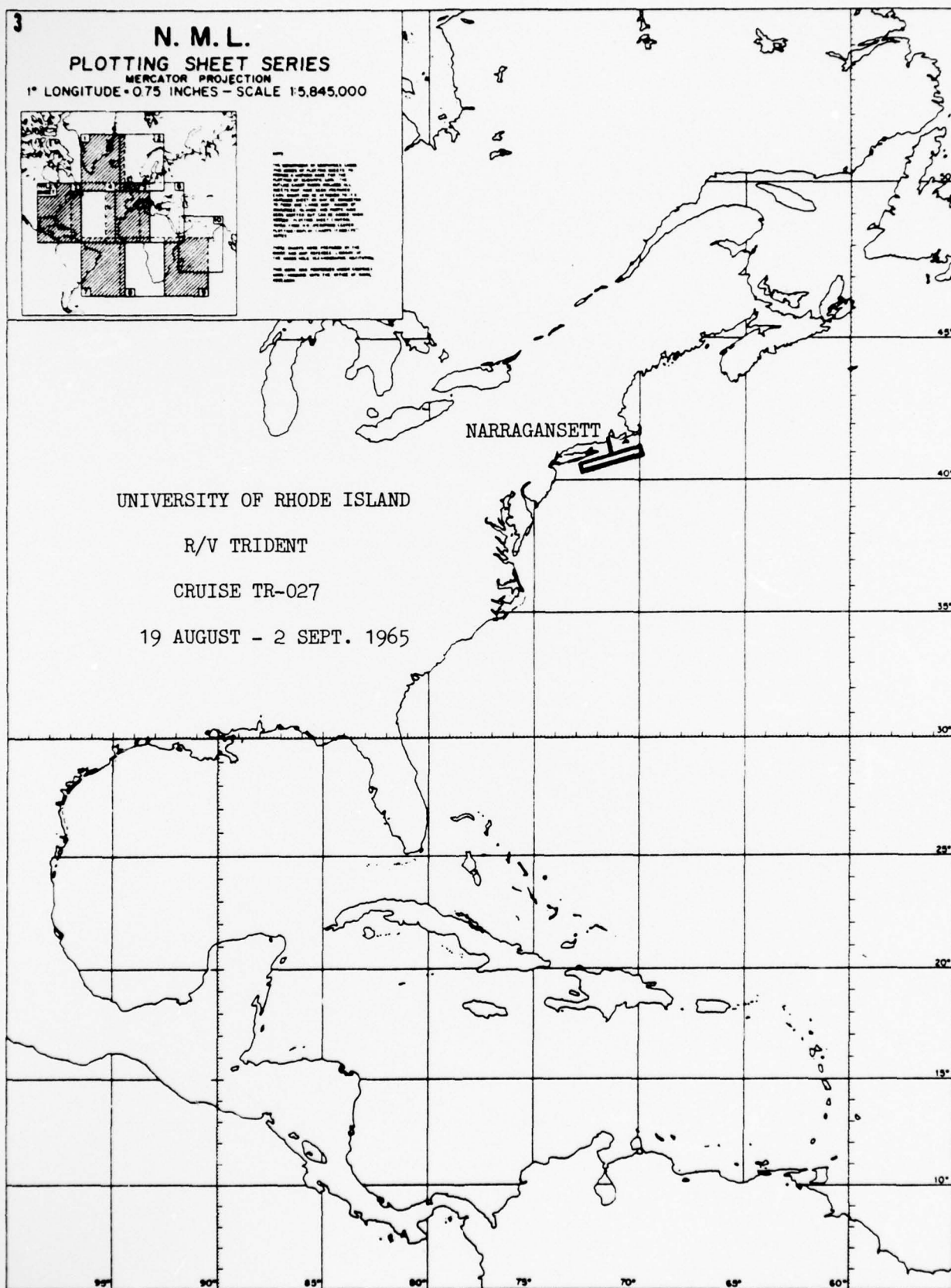
NARRAGANSETT

UNIVERSITY OF RHODE ISLAND

R/V TRIDENT

CRUISE TR-027

19 AUGUST - 2 SEPT. 1965



Cruise No.: TR-028A

Dates: 8 - 10 October 1965

Area of Operation: Northwest  
Atlantic Ocean

Days at sea: 3

Funding: ONR

#### Program Description

The main purpose of this cruise was

- a) to perform geophysical profiling equipment tests

#### Data Collected

- 1) 11 n.m. of seismic reflection profiles were run
- 2) Raytheon and Bolt equipment was tested

#### Participants

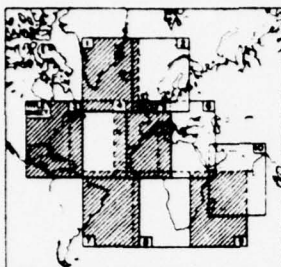
Dr. Dale C. Krause  
Mr. Gil Fain  
Mr. Donald Corrigan  
Mr. Mark Chramiec  
Mr. Ed Shore  
Mr. George Walsh  
Mr. Serge Wisotsky  
Mr. Antony Delano  
Mr. John Gilbert

Chief Scientist  
Electrical Engineering  
Graduate Student  
Scientist  
Scientist  
Scientist  
Scientist  
Scientist  
Scientist

U.R.I.  
U.R.I.  
U.R.I.  
Raytheon Co.  
Raytheon Co.  
Raytheon Co.  
Raytheon Co.  
Bolt Associates  
Bolt Associates

N. M. L.  
PLOTING SHEET SERIES

1° LONGITUDE = 0.75 INCHES - SCALE 1:5,845,000

[illegible]

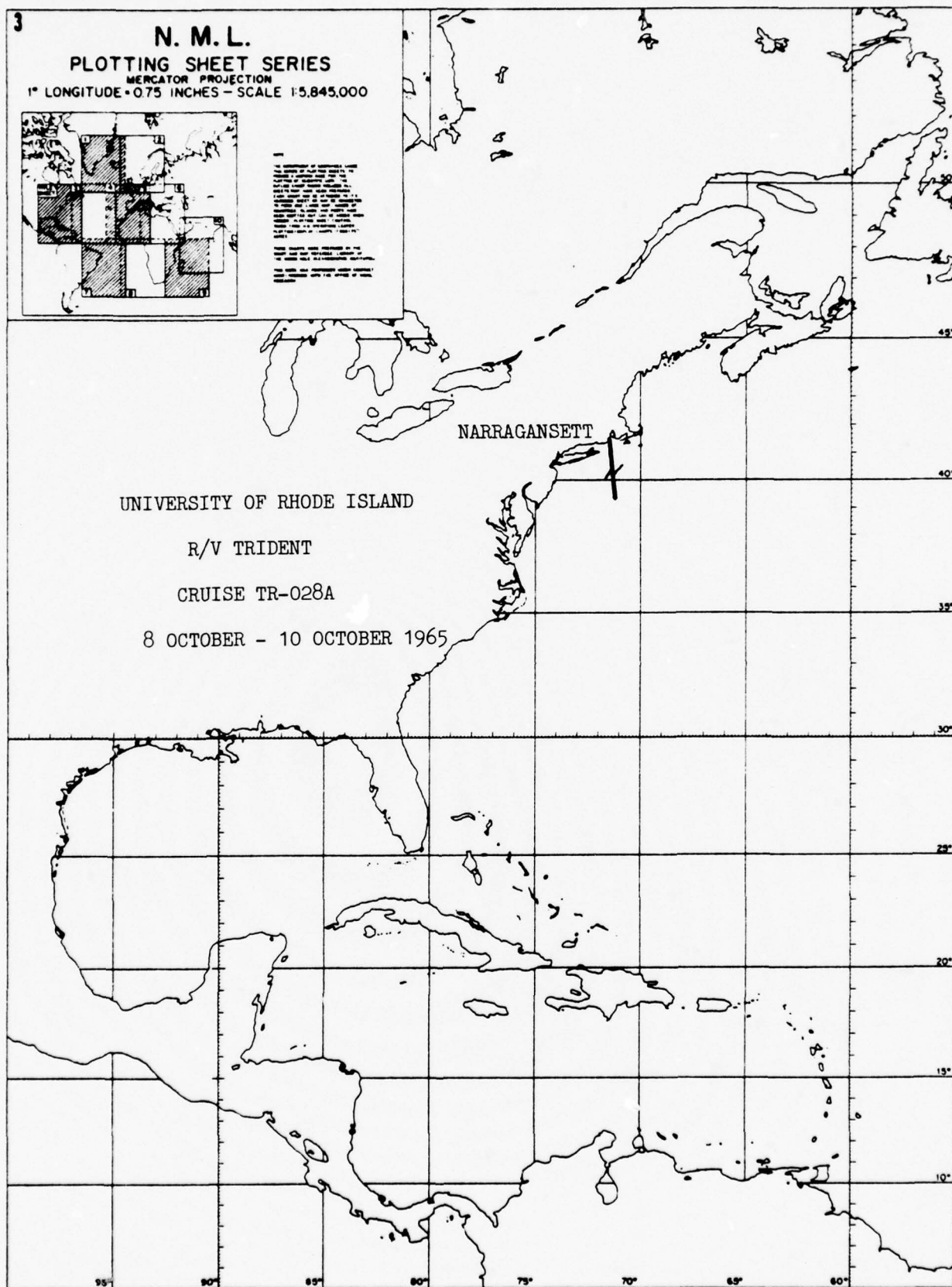
NARRAGANSETT

UNIVERSITY OF RHODE ISLAND

R/V TRIDENT

CRUISE TR-028A

8 OCTOBER - 10 OCTOBER 1965



Cruise No.: TR-028

Dates: 11 October - 20 December 1965      Area of Operation: North  
Atlantic Ocean

Days at sea: 66

Funding: ONR

#### Program Description

The main purposes of this cruise were

- a) to perform geological, geochemical and biological studies

#### Data Collected

- 1) 8,600 n.m. each of bathymetric and magnetic profiles were run
- 2) 700 n.m. of seismic reflection profiles were collected
- 3) 11 cores were taken
- 4) eight dredge hauls were recovered
- 5) five camera stations were occupied
- 6) 28 hydrographic stations were taken
- 7) 24 biological stations were run

#### Participants

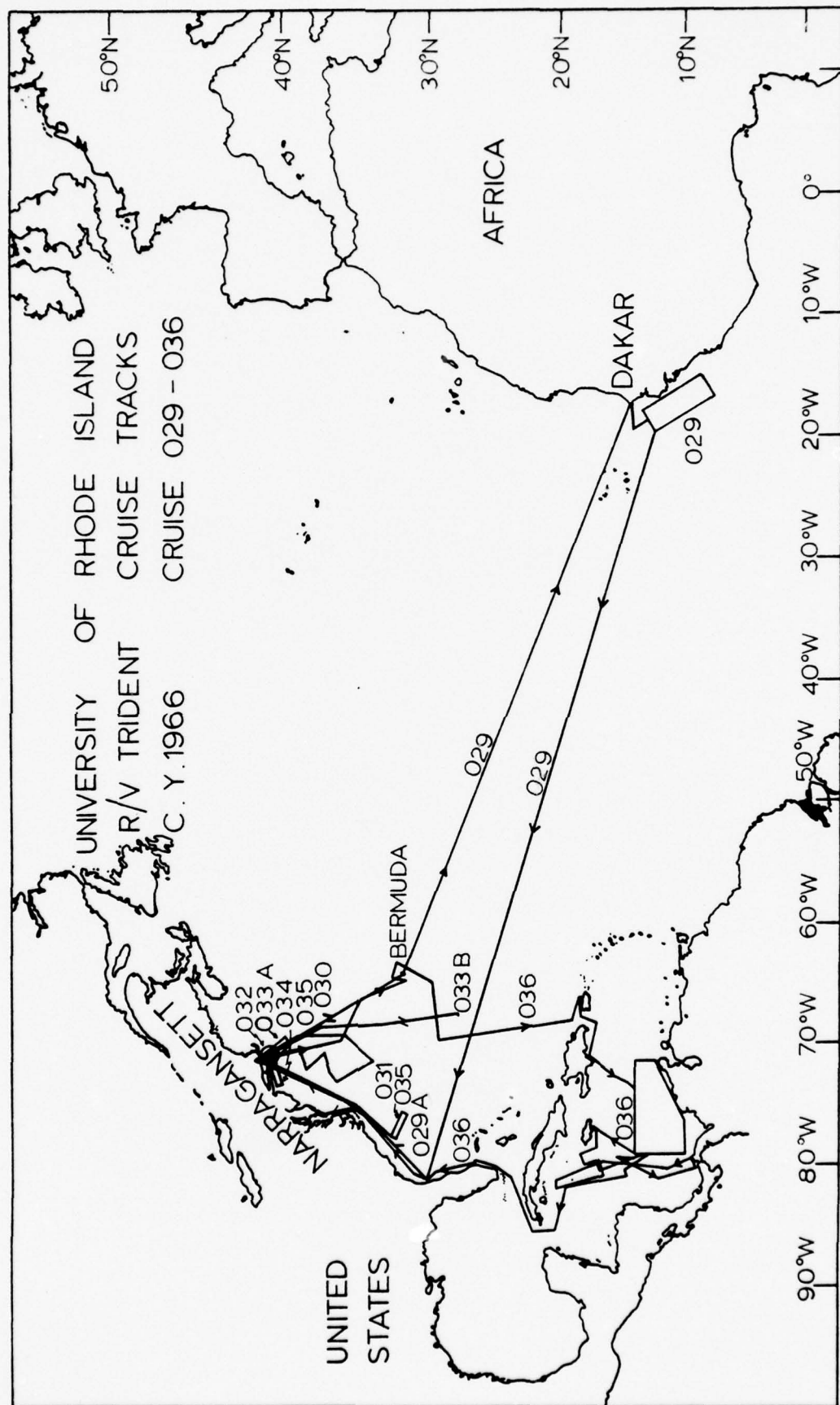
Dr. Dale C. Krause	Chief Scientist	U.R.I.
Dr. Frederico Machado	Volcanologist	Junta de Investigações do Ultramar, Lisbon
Mr. Joao Pacheco	Geologist	Junta de Investigações do Ultramar, Lisbon
Mr. Arthur Buddington	Oceanographic Specialist	U.R.I.
Mr. George F. Hoskins	Oceanographic Specialist	U.R.I.
Mr. John P. Piety	Oceanographic Specialist	U.R.I.
Mr. Kent A. Fanning	Graduate Student	U.R.I.
Mr. Robert O. Fournier	Graduate Student	U.R.I.
Mr. Arthur Gaines	Graduate Student	U.R.I.
Ms. Bonnie McGregor	Graduate Student	U.R.I.



R/V TRIDENT Cruises - CY 1966

Cruise No.	Dates	Days at Sea	Area of Operation	Chief Scientist/ Affiliation*
029	14 Mar. - 20 May	64	North Atlantic	McMaster
029A	22-28 May	7	NW Atlantic	Fish
030	2-11 June	10	NW Atlantic	Schneider/LDGO
031	20-28 June	9	NW Atlantic	Napora, Crandall
032	7 July	1	NW Atlantic	Jeffries
033A	11-15 July	5	NW Atlantic	Marshall
033B	17-29 July	13	NW Atlantic	Wheeler
034	3-16 Aug.	14	NW Atlantic	Garrison
035	1-20 Sept.	20	NW Atlantic	Knauss
036	26 Sept. - 19 Dec.	75	NW Atlantic, Caribbean	Krause, Corless

\*GS0/URI unless otherwise noted



Cruise No.: TR-029

Dates: 14 March - 20 May 1966

Area of Operation: Northwest and  
Northeast  
Atlantic Ocean

Days at sea: 64

Funding: ONR

#### Program Description

The main purposes of this cruise were

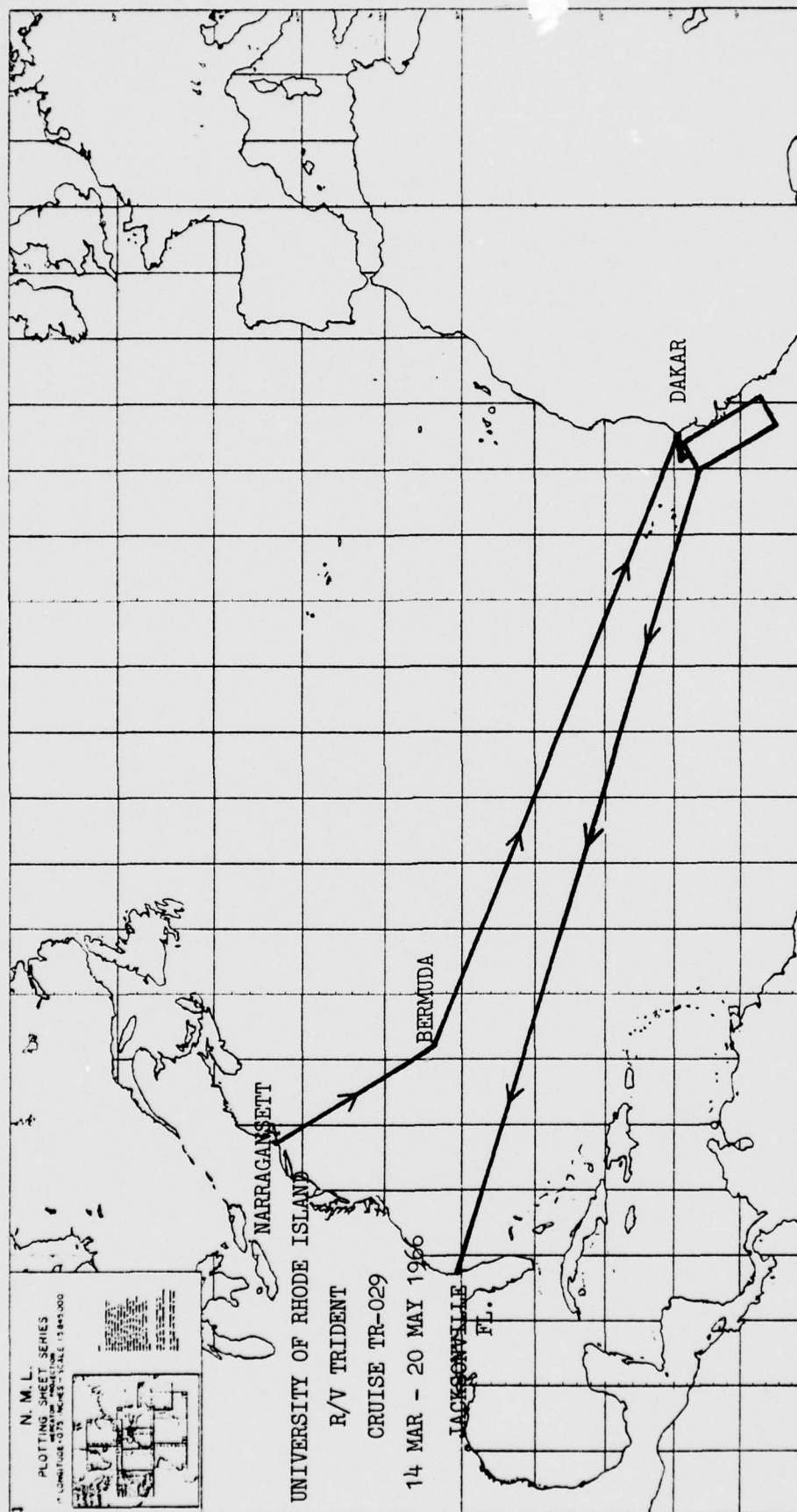
- a) to perform geological and geophysical survey off the coast of Guinea-Sierra Leone and on two transects across the North Atlantic Ocean

#### Data Collected

- 1) 10,540 n.m. of bathymetric profiles were run
- 2) 8,420 n.m. of magnetic lines were recorded
- 3) 560 n.m. of seismic reflection profiles were run
- 4) 117 grab samples were collected
- 5) six cores were taken
- 6) 11 dredge tows were collected
- 7) 20 camera stations were occupied
- 8) 60 MBT's were taken

#### Participants

Dr. R. L. McMaster	Chief Scientist	U.R.I.
Mr. A. Ashraf	Graduate Student	U.R.I.
Mr. A. Buddington	Marine Technician	U.R.I.
Mr. T. Kennard	Marine Technician	U.R.I.
Mr. J. Dodson	Electronic Technician	Electric Boat, General Dynamics
Mr. P. Petersen	Electronics Technician	U.R.I.
Mr. D. Smith	Student	U.R.I.



Cruise No.: TR-029A

Dates: 22 - 28 May 1966

Area of Operation: Northwest  
Atlantic Ocean

Days at sea: 7

Funding: ONR

#### Program Description

The main purposes of this cruise were

- a) to run several bioacoustic stations along the ship's track
- b) to maintain whale and porpoise watches
- c) to run night-lighted fishing stations

#### Data Collected

- 1) seven bioacoustic stations were run
- 2) two night-lighted stations were occupied
- 3) a continuous whale/porpoise watch was kept

#### Participants

Dr. Charles J. Fish	Chief Scientist	U.R.I.
Dr. Marie P. Fish	Scientist	U.R.I.
Mr. Paul J. Perkins	Oceanographic Specialist	U.R.I.
Mr. Arthur B. Buddington	Oceanographic Specialist	U.R.I.
Mr. Timothy Kennard	Oceanographic Specialist	U.R.I.
Mr. Asaf Ashraf	Graduate Student	U.R.I.
Mr. J. Lawrence Dunn	Graduate Student	U.R.I.
Mr. David M. Smith	Oceanographic Assistant	U.R.I.

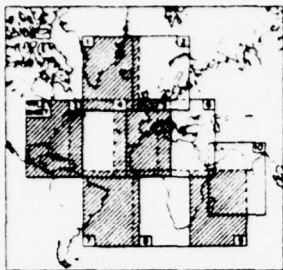
3

N. M. L.

## PLOTting SHEET SERIES

MERCATOR PROJECTION

1" LONGITUDE = 0.75 INCHES - SCALE 1:5,845,000



NOTE: THIS SHEET IS PART OF A SERIES OF 12 SHEETS COVERING THE NORTH ATLANTIC OCEAN. THE SHEETS ARE PUBLISHED BY THE NATIONAL METEOROLOGICAL SERVICE, WASHINGTON, D. C. 20541. THE SHEETS ARE AVAILABLE FOR PURCHASE FROM THE NATIONAL METEOROLOGICAL SERVICE, WASHINGTON, D. C. 20541. THE SHEETS ARE AVAILABLE FOR PURCHASE FROM THE NATIONAL METEOROLOGICAL SERVICE, WASHINGTON, D. C. 20541.

UNIVERSITY OF RHODE ISLAND

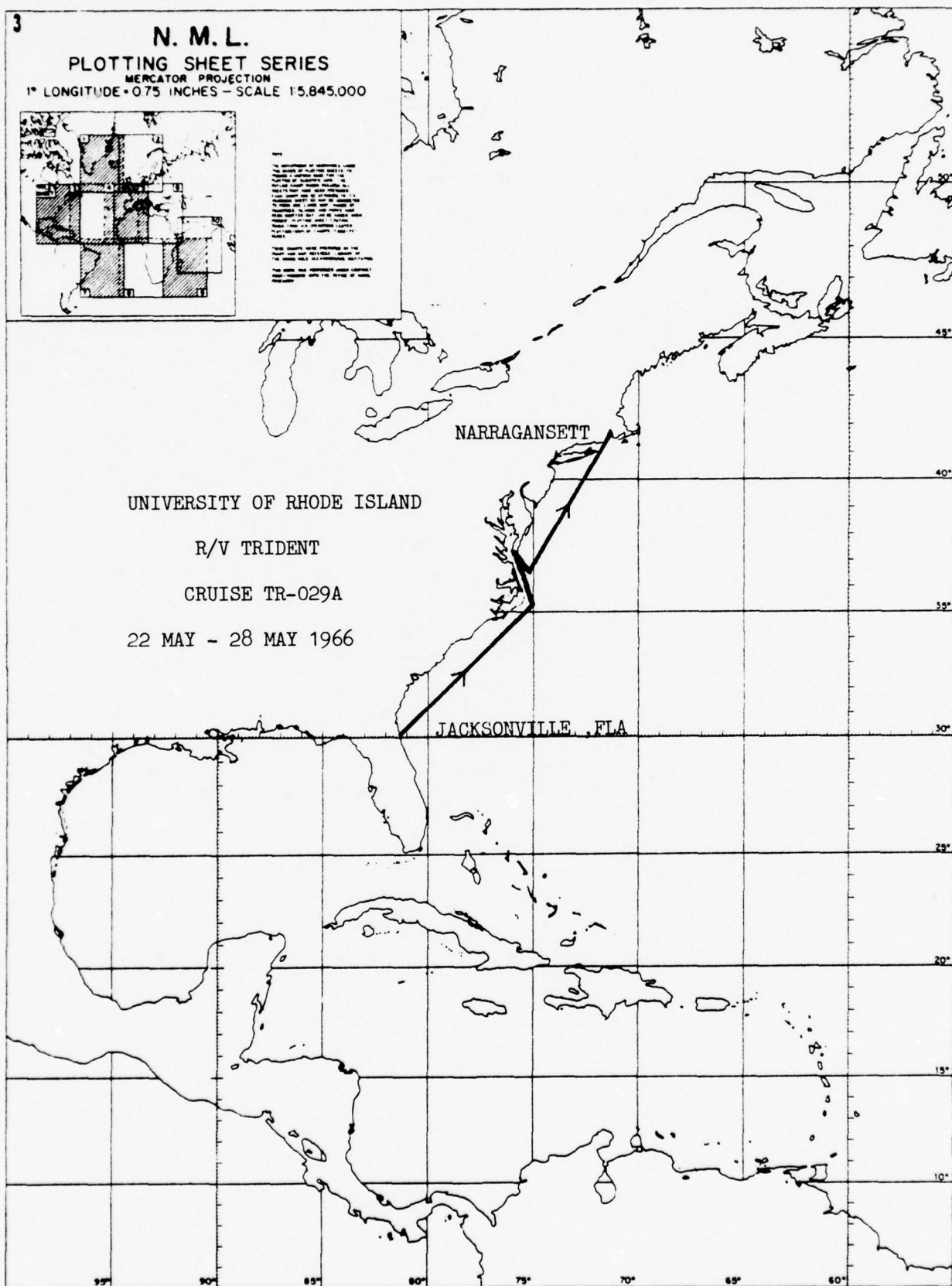
R/V TRIDENT

CRUISE TR-029A

22 MAY - 28 MAY 1966

NARRAGANSETT

JACKSONVILLE, FLA



Cruise No.: TR-030

Dates: 2 - 11 June 1966

Area of Operation: Northwest  
Atlantic Ocean

Days at sea: 10

Funding: ONR, NSF

#### Program Description

The main purpose of this cruise was

- a) to study bottom currents and geology between Narragansett, R. I., and Bermuda using bottom photographs

#### Data Collected

- 1) 36 bottom photography stations were occupied

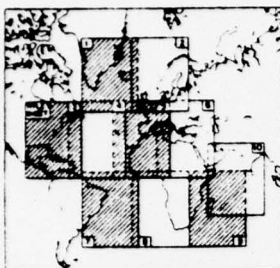
#### Participants

Mr. Eric Schneider	Chief Scientist	L.G.O.
Dr. D. Chou	Professor	L.G.O.
Mr. Marish Chamberlain	Graduate Student	L.G.O.
Mr. John Damuth	Graduate Student	L.G.O.
Mr. Edward Escowitz	Graduate Student	L.G.O.
Mr. John Foster	Graduate Student	L.G.O.
Mr. Paul J. Fox	Graduate Student	L.G.O.
Ms. Hester Harding	Graduate Student	L.G.O.
Ms. Marily Hightower	Graduate Student	L.G.O.
Mr. Allen Lowrie, Jr.	Graduate Student	L.G.O.
Mr. David Needham	Graduate Student	L.G.O.
Mr. Donald Pine	Graduate Student	L.G.O.
Mr. Robert Sheridan	Graduate Student	L.G.O.

3

# N. M. L. PLOTING SHEET SERIES

MERCATOR PROJECTION  
1" LONGITUDE = 0.75 INCHES - SCALE 1:5,845,000



1. Name of vessel  
2. Name of commanding officer  
3. Name of observer  
4. Name of sponsor  
5. Date of departure  
6. Date of arrival  
7. Name of port of departure  
8. Name of port of arrival  
9. Name of island or group of islands  
10. Name of reef or shoal  
11. Name of bank or shoal  
12. Name of sandbar or shoal  
13. Name of sandbar or shoal  
14. Name of sandbar or shoal  
15. Name of sandbar or shoal  
16. Name of sandbar or shoal  
17. Name of sandbar or shoal  
18. Name of sandbar or shoal  
19. Name of sandbar or shoal  
20. Name of sandbar or shoal  
21. Name of sandbar or shoal  
22. Name of sandbar or shoal  
23. Name of sandbar or shoal  
24. Name of sandbar or shoal  
25. Name of sandbar or shoal  
26. Name of sandbar or shoal  
27. Name of sandbar or shoal  
28. Name of sandbar or shoal  
29. Name of sandbar or shoal  
30. Name of sandbar or shoal  
31. Name of sandbar or shoal  
32. Name of sandbar or shoal  
33. Name of sandbar or shoal  
34. Name of sandbar or shoal  
35. Name of sandbar or shoal  
36. Name of sandbar or shoal  
37. Name of sandbar or shoal  
38. Name of sandbar or shoal  
39. Name of sandbar or shoal  
40. Name of sandbar or shoal  
41. Name of sandbar or shoal  
42. Name of sandbar or shoal  
43. Name of sandbar or shoal  
44. Name of sandbar or shoal  
45. Name of sandbar or shoal  
46. Name of sandbar or shoal  
47. Name of sandbar or shoal  
48. Name of sandbar or shoal  
49. Name of sandbar or shoal  
50. Name of sandbar or shoal  
51. Name of sandbar or shoal  
52. Name of sandbar or shoal  
53. Name of sandbar or shoal  
54. Name of sandbar or shoal  
55. Name of sandbar or shoal  
56. Name of sandbar or shoal  
57. Name of sandbar or shoal  
58. Name of sandbar or shoal  
59. Name of sandbar or shoal  
60. Name of sandbar or shoal  
61. Name of sandbar or shoal  
62. Name of sandbar or shoal  
63. Name of sandbar or shoal  
64. Name of sandbar or shoal  
65. Name of sandbar or shoal  
66. Name of sandbar or shoal  
67. Name of sandbar or shoal  
68. Name of sandbar or shoal  
69. Name of sandbar or shoal  
70. Name of sandbar or shoal  
71. Name of sandbar or shoal  
72. Name of sandbar or shoal  
73. Name of sandbar or shoal  
74. Name of sandbar or shoal  
75. Name of sandbar or shoal  
76. Name of sandbar or shoal  
77. Name of sandbar or shoal  
78. Name of sandbar or shoal  
79. Name of sandbar or shoal  
80. Name of sandbar or shoal  
81. Name of sandbar or shoal  
82. Name of sandbar or shoal  
83. Name of sandbar or shoal  
84. Name of sandbar or shoal  
85. Name of sandbar or shoal  
86. Name of sandbar or shoal  
87. Name of sandbar or shoal  
88. Name of sandbar or shoal  
89. Name of sandbar or shoal  
90. Name of sandbar or shoal  
91. Name of sandbar or shoal  
92. Name of sandbar or shoal  
93. Name of sandbar or shoal  
94. Name of sandbar or shoal  
95. Name of sandbar or shoal  
96. Name of sandbar or shoal  
97. Name of sandbar or shoal  
98. Name of sandbar or shoal  
99. Name of sandbar or shoal  
100. Name of sandbar or shoal

NARRAGANSETT

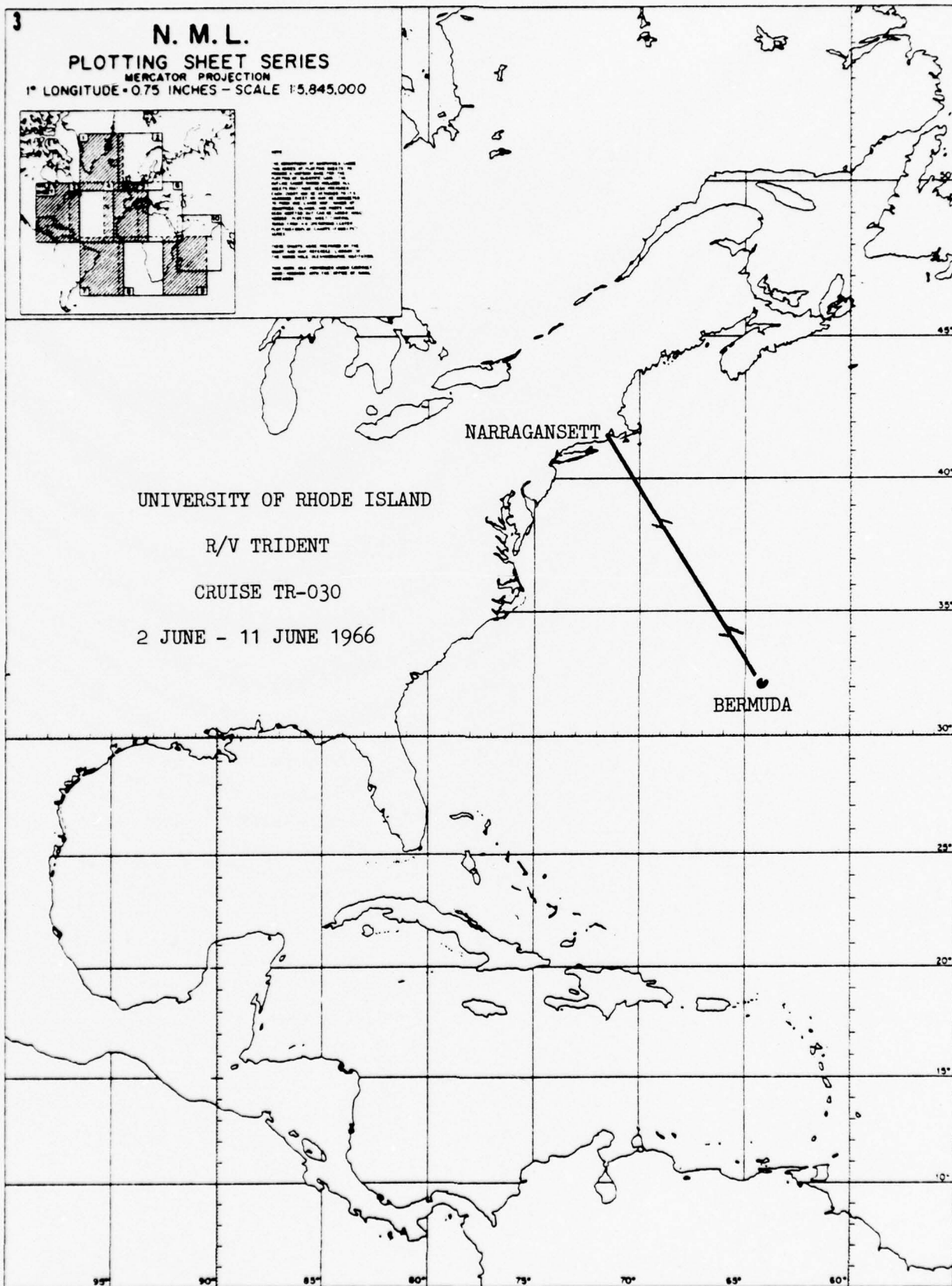
UNIVERSITY OF RHODE ISLAND

R/V TRIDENT

CRUISE TR-030

2 JUNE - 11 JUNE 1966

BERMUDA



Cruise No.: TR-031

Dates: 20 - 28 June 1966

Area of Operation: Northwest  
Atlantic Ocean

Days at sea: 9

Funding: ONR

#### Program Description

The main purpose of this cruise was

- a) to familiarize oceanographic students with research vessel methods

#### Data Collected

- 1) The following were accomplished:

hydrographic station, MBT's, phytoplankton tows, camera station,  
grab samples, neuston tow, net tows

#### Participants

Dr. T. Napora	Co-Chief Scientist	U.R.I.
Mr. D. Crandall	Co-Chief Scientist	U.R.I.
Mr. S. Cobb	Graduate Student	U.R.I.
Mr. M. Fecher	Graduate Student	U.R.I.
Mr. J. Frey	Graduate Student	U.R.I.
Ms. B. Mitchell-Innes	Graduate Student	U.R.I.
Mr. G. Offutt	Graduate Student	U.R.I.
Mr. T. Polgar	Graduate Student	U.R.I.
Mr. B. Reynolds	Graduate Student	U.R.I.
Mr. C. Robinson	Graduate Student	U.R.I.
Mr. M. Shalem	Graduate Student	U.R.I.
Mr. E. H. Wheeler	Graduate Student	U.R.I.

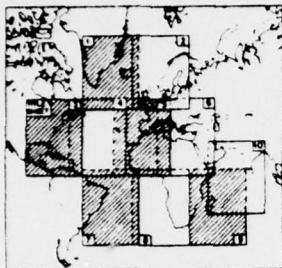
3

N. M. L.

PLOTING SHEET SERIES

MERCATOR PROJECTION

1" LONGITUDE = 0.75 INCHES - SCALE 1:5,845,000



1. Symbols for land, water, and other features are shown in the legend.

2. The map is based on the NAD 83 datum.

3. The map is based on the Mercator projection.

4. The map is based on the scale of 1:5,845,000.

5. The map is based on the 1" longitude = 0.75 inches scale.

6. The map is based on the N. M. L. plotting sheet series.

7. The map is based on the Mercator projection.

8. The map is based on the scale of 1:5,845,000.

9. The map is based on the 1" longitude = 0.75 inches scale.

10. The map is based on the N. M. L. plotting sheet series.

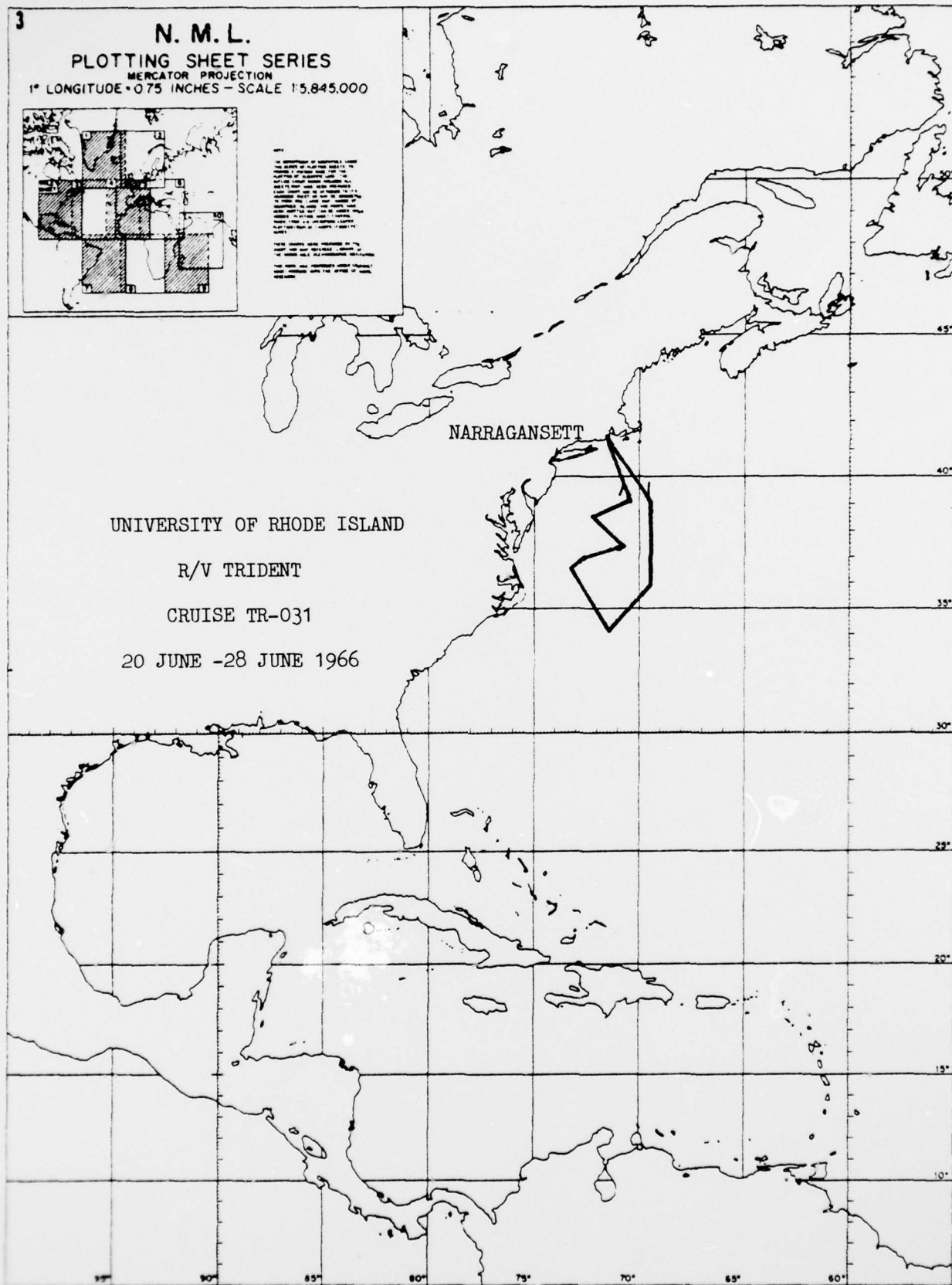
NARRAGANSETT

UNIVERSITY OF RHODE ISLAND

R/V TRIDENT

CRUISE TR-031

20 JUNE -28 JUNE 1966



Cruise No.: TR-032

Dates: 7 July 1966

Area of Operation: Northwest  
Atlantic Ocean

Days at sea: 1

Funding: ONR

Program Description

The main purpose of this cruise was

- a) to provide a one-day orientation cruise for the biology teachers' summer institute

Data Collected

None

Participants

Dr. H. P. Jeffries  
Biology teachers

Chief Scientist

U.R.I.

N. M. L.  
PLOTING SHEET SERIES

THE INFORMATION OF MEMBERSHIP IS LIMITED  
TO THE MEMBERS OF THE CLUB AND IS NOT TO  
BE USED FOR ANY OTHER PURPOSE. THE  
CLUB IS NOT RESPONSIBLE FOR THE LOSS OF  
ANYTHING LEFT IN THE CLUB OR FOR THE  
DAMAGE TO ANYTHING LEFT IN THE CLUB.  
THE CLUB IS NOT RESPONSIBLE FOR THE LOSS  
OF ANYTHING LEFT IN THE CLUB OR FOR THE  
DAMAGE TO ANYTHING LEFT IN THE CLUB.

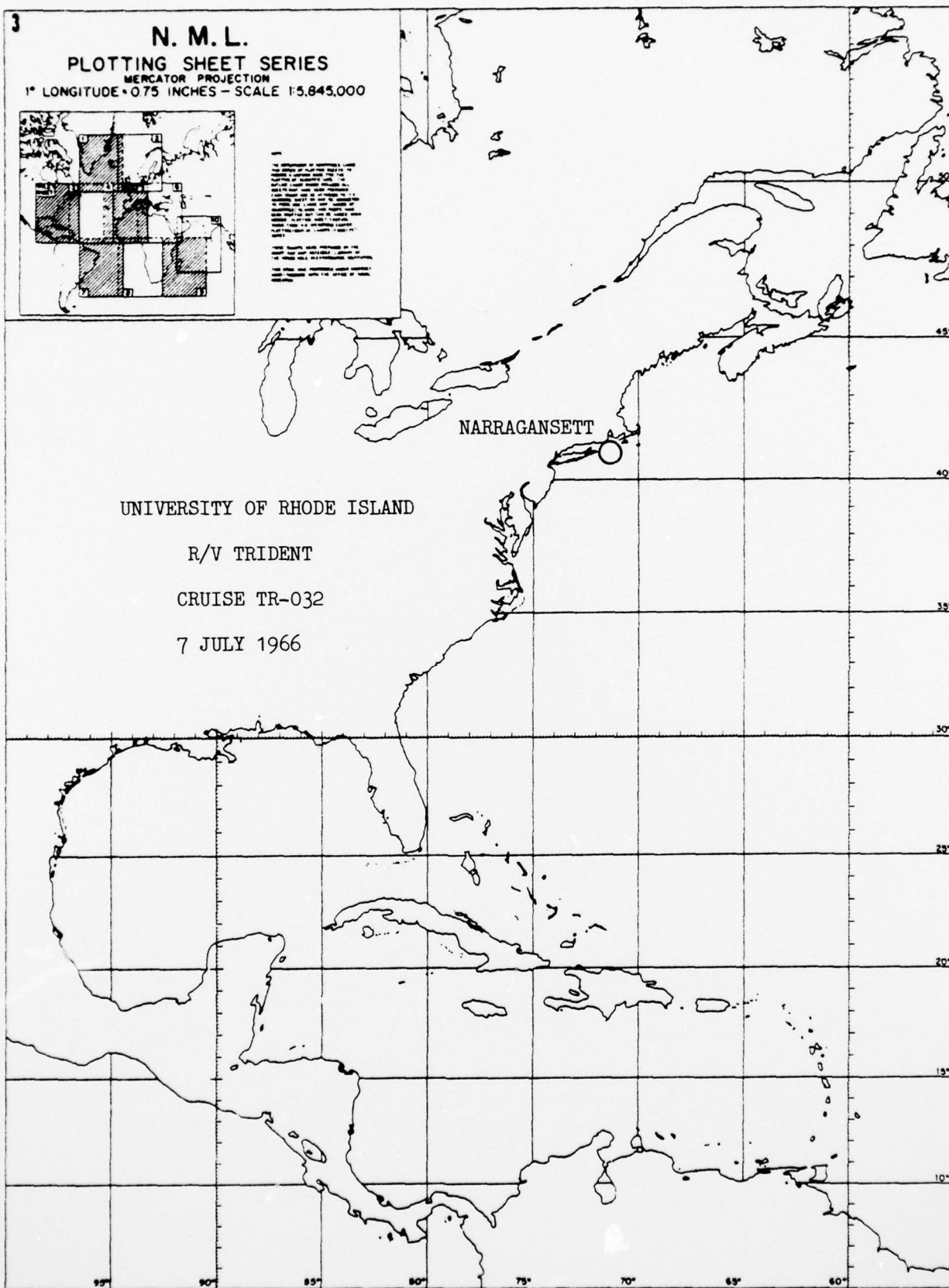
NARRAGANSETT

UNIVERSITY OF RHODE ISLAND

R/V TRIDENT

CRUISE TR-032

7 JULY 1966



Cruise No.: TR-033A

Dates: 11 - 15 July 1966

Area of Operation: Northwest  
Atlantic Ocean

Days at sea: 5

Funding: NSF

#### Program Description

The main purpose of this cruise was

- a) to ascertain the distribution of larvae of the inshore lobster population

#### Data Collected

- 1) nine tow stations with associated hydrocasts and MBT's were occupied
- 2) bottom photographs and grab samples were obtained

#### Participants

Dr. Nelson Marshall	Chief Scientist	U.R.I.
Dr. Daniel Sass	Professor	Alfred University
Mr. Paul Gaffney II	Midshipman 2nd Class	Annapolis
Mr. Robert Burgio	Scientist	Hittman Associates, Inc., Baltimore
Mr. Arthur Buddington	Oceanographic Specialist	U.R.I.
Mr. Timothy Kennard	Oceanographic Specialist	U.R.I.
Mr. Bruce Reynolds	Research Assistant	U.R.I.
Mr. Stanley Cobb	Graduate Student	U.R.I.
Mr. John French	Graduate Student	U.R.I.
Ms. Carolyn Robinson	Graduate Student	U.R.I.
Mr. Robert Singletary	Graduate Student	U.R.I.

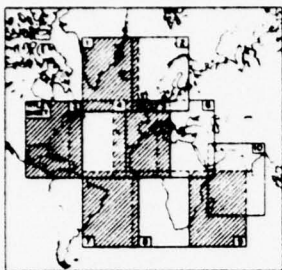
3

N. M. L.

## PLOTting SHEET SERIES

MERCATOR PROJECTION

1° LONGITUDE = 0.75 INCHES - SCALE 1:5,845,000



NOTE: This sheet is part of a series of 12 sheets covering the North Atlantic Ocean from 60°N to 40°N and 90°W to 60°W. The sheets are numbered 1 through 12, with 1 being the top left and 12 being the bottom right. The sheets are arranged in a 3x4 grid. The main map area is shown in the top right corner of the grid.

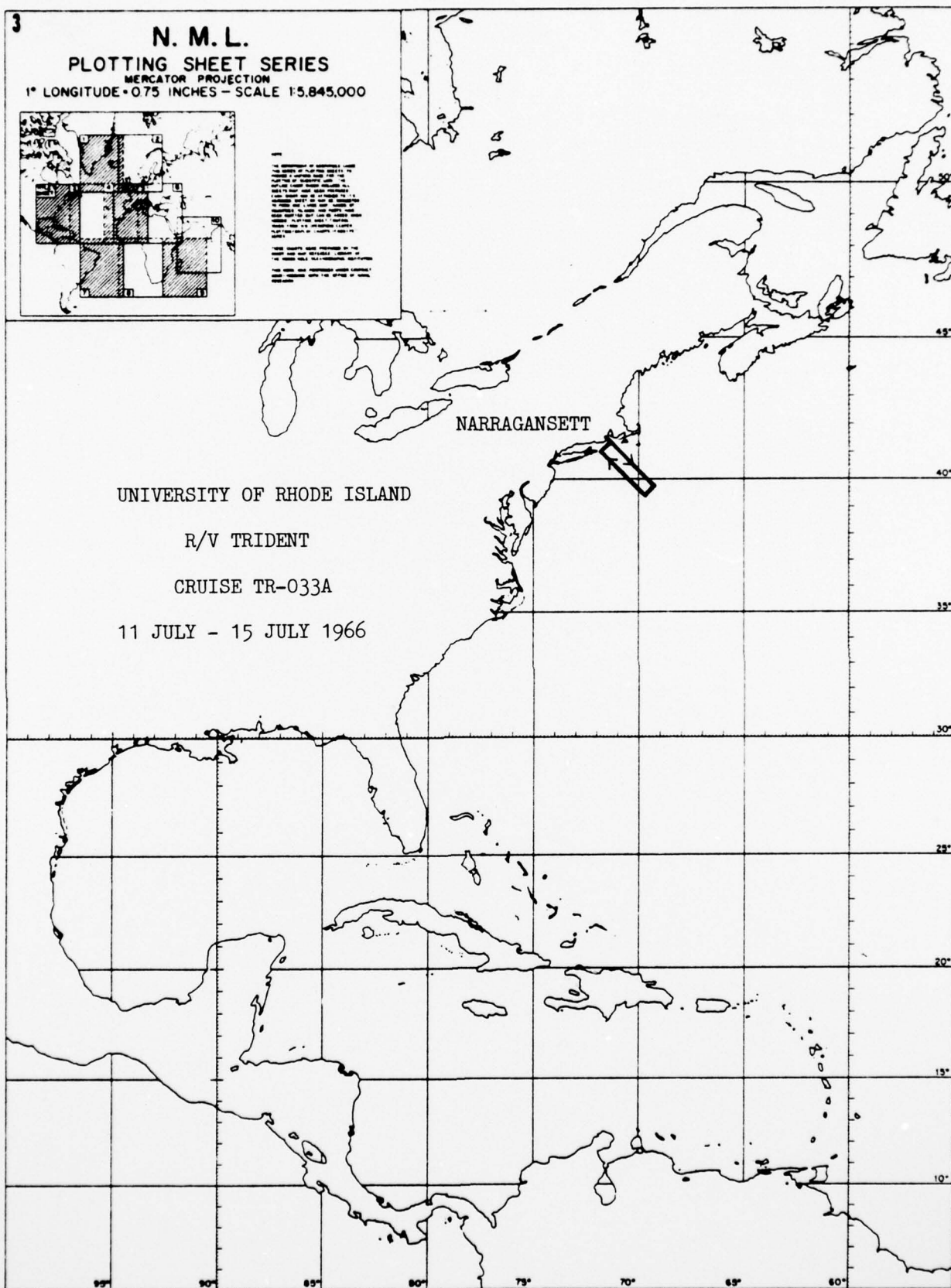
NARRAGANSETT

UNIVERSITY OF RHODE ISLAND

R/V TRIDENT

CRUISE TR-033A

11 JULY - 15 JULY 1966



Cruise No.: TR-033B

Dates: 17 - 29 July 1966

Area of Operation: Northwest  
Atlantic Ocean

Days at sea: 13

Funding: ONR

#### Program Description

The main purpose of this cruise was

- a) to collect biological samples on the shelf and southeast of the Gulf Stream

#### Data Collected

- 1) two shelf stations were occupied
- 2) noon surface tows were made
- 3) two trawl hauls were made

#### Participants

Mr. E. H. Wheeler	Chief Scientist	U.R.I.
Ms. L. Alzara	Graduate Student	U.R.I.
Mr. C. Robinson	Graduate Student	U.R.I.
Mr. W. Widmer	Graduate Student	U.R.I.

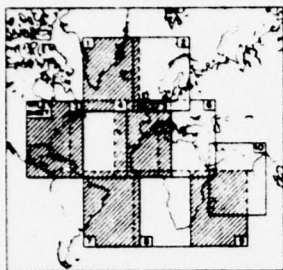
3

N. M. L.

## PLOTting SHEET SERIES

MERCATOR PROJECTION

1" LONGITUDE = 0.75 INCHES - SCALE 1:5,845,000



NOTE: This map is a reproduction of the original map. It is not to be used for navigation. It is for reference only. The original map is the property of the National Marine Laboratory and is loaned to you for your use. It is to be returned to the National Marine Laboratory when you are finished with it. Do not write on it. Do not mark it. Do not damage it. Do not lose it. Do not allow it to be lost. Do not allow it to be damaged. Do not allow it to be marked. Do not allow it to be written on. Do not allow it to be used for navigation. It is for reference only.

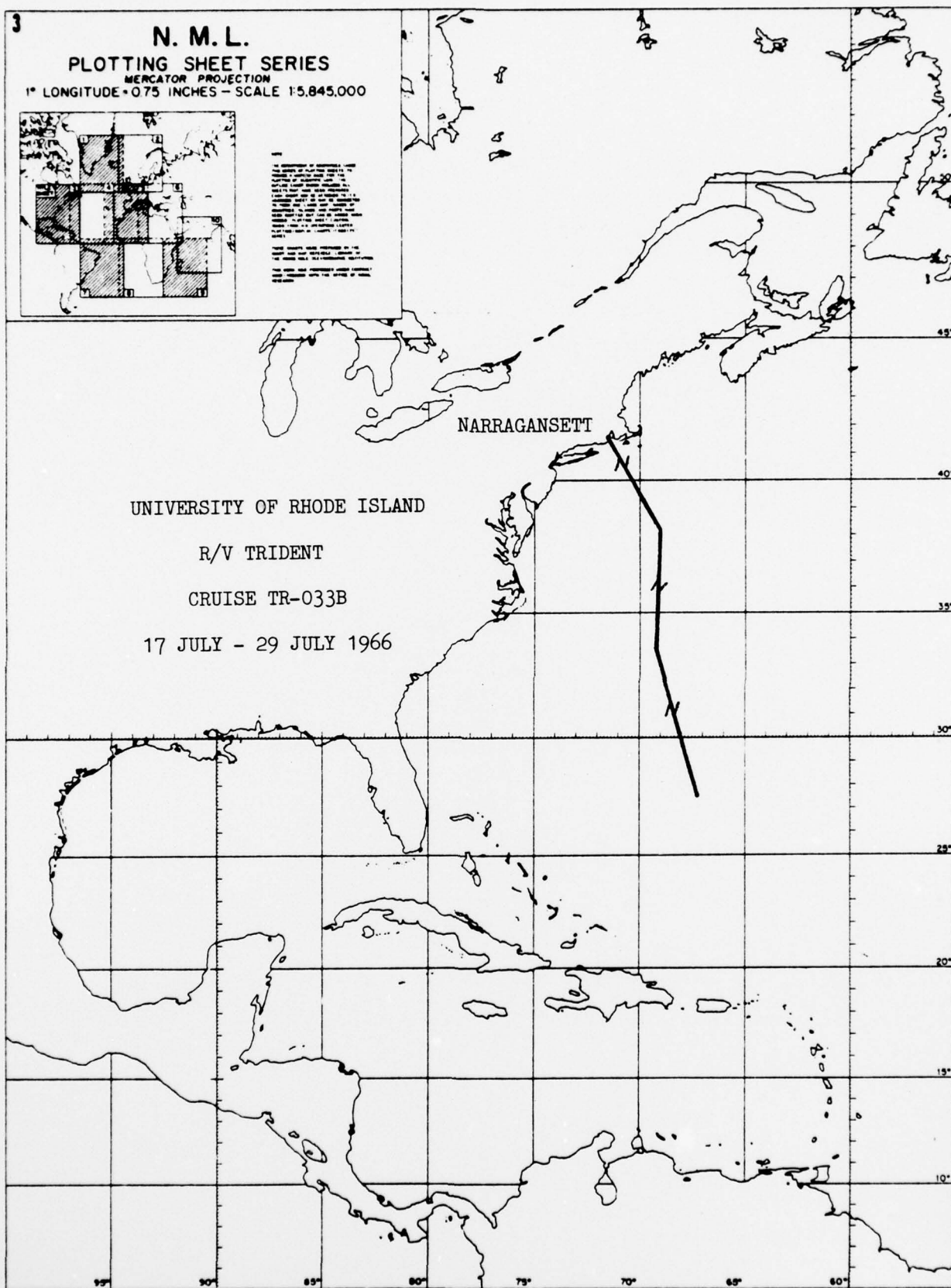
NARRAGANSETT

UNIVERSITY OF RHODE ISLAND

R/V TRIDENT

CRUISE TR-033B

17 JULY - 29 JULY 1966



Cruise No.: TR-034

Dates: 3 - 16 August 1966

Area of Operation: Northwest  
Atlantic Ocean

Days at sea: 14

Funding: ONR

#### Program Description

The main purpose of this cruise was

- a) to investigate the geology of the continental shelf south of New England
- b) to occupy biological/hydrographic stations

#### Data Collected

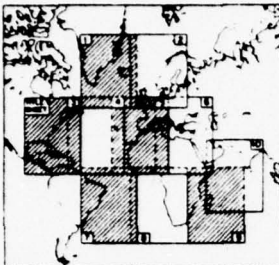
- 1) 1,000 n.m. each of bathymetric and seismic reflection profiles were run
- 2) eight grabs were taken
- 3) six cores were taken
- 4) eight hydrographic stations were occupied
- 5) 10 MBT's were taken
- 6) 10 net tows were made

#### Participants

Mr. L. Garrison	Chief Scientist	U.R.I.
Dr. D. Krause	Professor	U.R.I.
Mr. A. Buddington	Marine Technician	U.R.I.
Mr. A. Ashraf	Graduate Student	U.R.I.
Mr. J. Curtin	Graduate Student	U.R.I.
Mr. R. Radulski	Graduate Student	U.R.I.
Mr. H. Russell	Graduate Student	U.R.I.
Mr. N. Williams	Graduate Student	U.R.I.

3

N. M. L.  
PLOTING SHEET SERIES  
MERCATOR PROJECTION  
1° LONGITUDE = 0.75 INCHES - SCALE 1:5,845,000



1. Symbols for surface and bottom temperatures, salinity, etc., are given in the N. M. L. Plotting Sheet Series. 2. Symbols for surface and bottom currents are given in the N. M. L. Plotting Sheet Series. 3. Symbols for surface and bottom winds are given in the N. M. L. Plotting Sheet Series. 4. Symbols for surface and bottom waves are given in the N. M. L. Plotting Sheet Series. 5. Symbols for surface and bottom clouds are given in the N. M. L. Plotting Sheet Series. 6. Symbols for surface and bottom visibility are given in the N. M. L. Plotting Sheet Series. 7. Symbols for surface and bottom pressure are given in the N. M. L. Plotting Sheet Series. 8. Symbols for surface and bottom humidity are given in the N. M. L. Plotting Sheet Series. 9. Symbols for surface and bottom precipitation are given in the N. M. L. Plotting Sheet Series. 10. Symbols for surface and bottom ice are given in the N. M. L. Plotting Sheet Series.

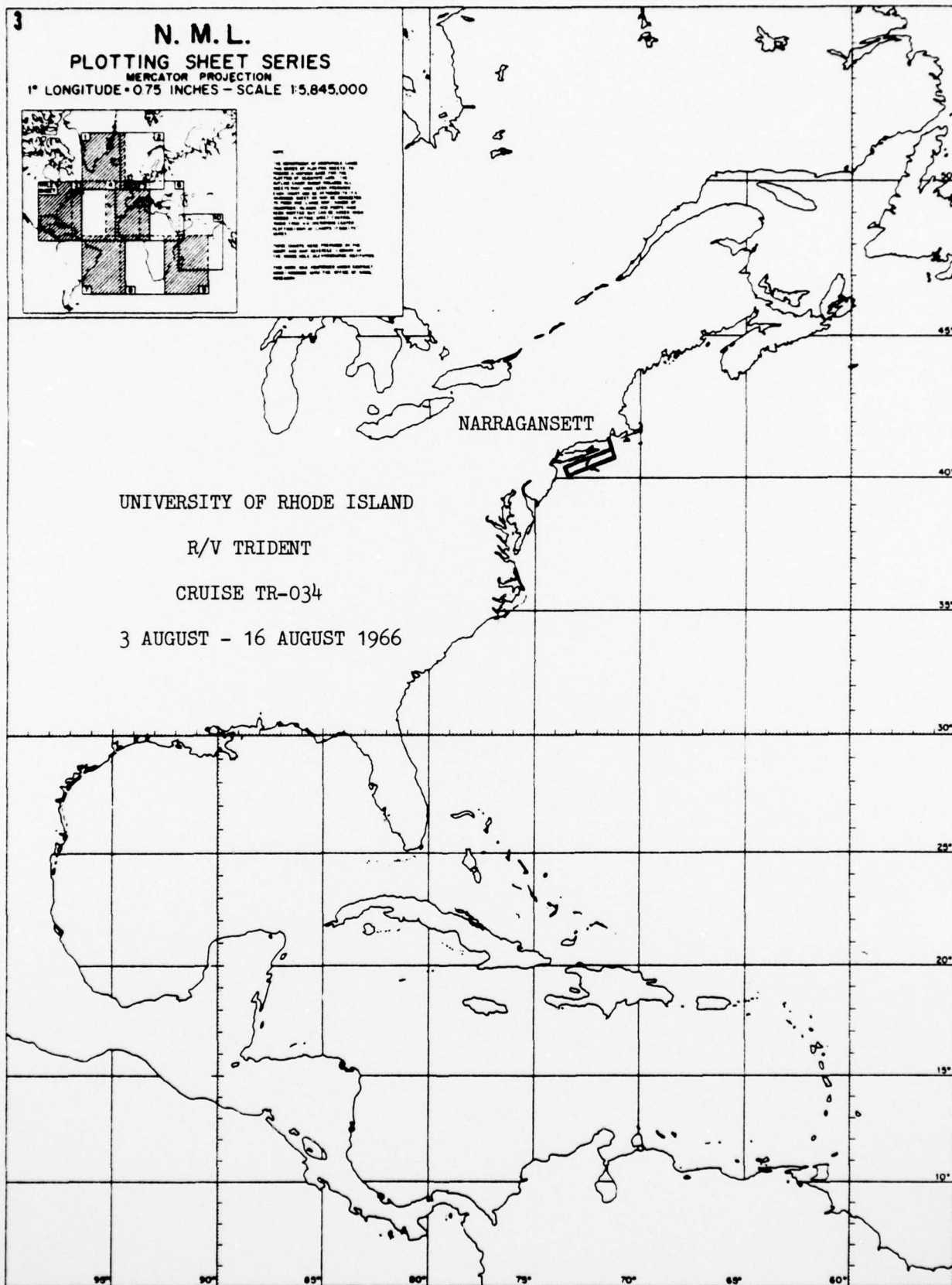
NARRAGANSETT

UNIVERSITY OF RHODE ISLAND

R/V TRIDENT

CRUISE TR-034

3 AUGUST - 16 AUGUST 1966



Cruise No.: TR-035

Dates: 1 - 20 September 1966

Area of Operation: Northwest  
Atlantic Ocean

Days at sea: 20

Funding: ONR

#### Program Description

The main purpose of this cruise was

- a) to investigate the structure and transport of the Gulf Stream

#### Data Collected

- 1) 17 hydrographic stations were occupied
- 2) 41 direct transport floats were launched and recovered
- 3) five bottom current meters were deployed with four being recovered
- 4) XBT's were taken

#### Participants

Dr. John A. Knauss	Chief Scientist	U.R.I.
Dr. Melvin E. Stern	Professor	U.R.I.
Mr. Philip Bedard	Electronics Engineer	U.R.I.
Mr. Paul J. Peterson	Electronics Technician	U.R.I.
Mr. Robert K. Sexton	Research Assistant	U.R.I.
Mr. Arthur Buddington	Oceanographic Specialist	U.R.I.
Mr. Charles V. Beckers	Graduate Student	U.R.I.
Mr. Michael Fecher	Graduate Student	U.R.I.
Mr. Tibor Polgar	Graduate Student	U.R.I.
Mr. Irving Sheldon	Student	

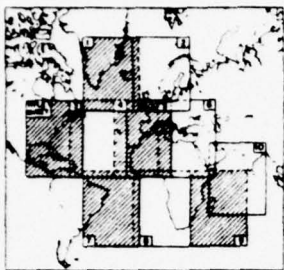
3

N. M. L.

PLOTING SHEET SERIES

MERCATOR PROJECTION

1" LONGITUDE = 0.75 INCHES - SCALE 1:5,845,000



1. Symbols for land, water, and ice are as shown on the Nautical Chart of the North Atlantic Ocean, 1:50,000 scale.

2. Symbols for land, water, and ice are as shown on the Nautical Chart of the North Atlantic Ocean, 1:50,000 scale.

3. Symbols for land, water, and ice are as shown on the Nautical Chart of the North Atlantic Ocean, 1:50,000 scale.

4. Symbols for land, water, and ice are as shown on the Nautical Chart of the North Atlantic Ocean, 1:50,000 scale.

5. Symbols for land, water, and ice are as shown on the Nautical Chart of the North Atlantic Ocean, 1:50,000 scale.

6. Symbols for land, water, and ice are as shown on the Nautical Chart of the North Atlantic Ocean, 1:50,000 scale.

7. Symbols for land, water, and ice are as shown on the Nautical Chart of the North Atlantic Ocean, 1:50,000 scale.

8. Symbols for land, water, and ice are as shown on the Nautical Chart of the North Atlantic Ocean, 1:50,000 scale.

9. Symbols for land, water, and ice are as shown on the Nautical Chart of the North Atlantic Ocean, 1:50,000 scale.

10. Symbols for land, water, and ice are as shown on the Nautical Chart of the North Atlantic Ocean, 1:50,000 scale.

NARRAGANSETT

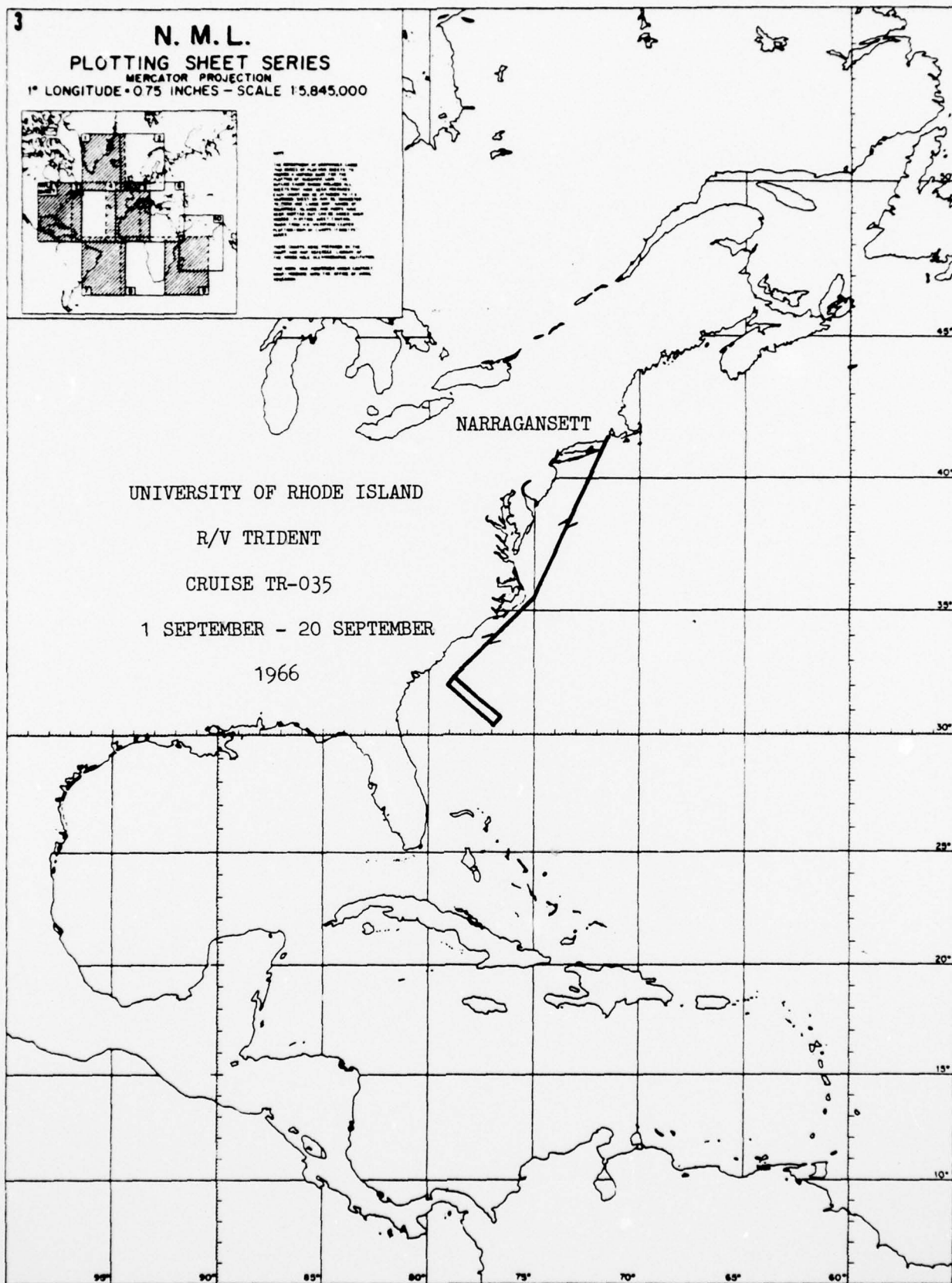
UNIVERSITY OF RHODE ISLAND

R/V TRIDENT

CRUISE TR-035

1 SEPTEMBER - 20 SEPTEMBER

1966



Cruise No.: TR-036

Dates: 26 September - 19 December 1966      Area of Operation: Northwest  
Days at sea: 75      Atlantic Ocean  
and Caribbean  
Sea

Funding: ONR

#### Program Description

The main purposes of this cruise were

- a) to perform geological/geophysical studies
- b) to make biological and biogeochemical analyses

#### Data Collected

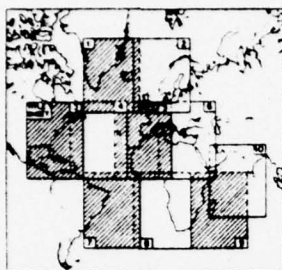
- 1) 6,150 n.m. of bathymetric and magnetic profiles were run
- 2) 900 n.m. of seismic reflection profiles were run
- 3) three cores were taken
- 4) three dredges were recovered
- 5) 20 biogeochemical stations were occupied
- 6) six bioacoustic stations were occupied

#### Participants

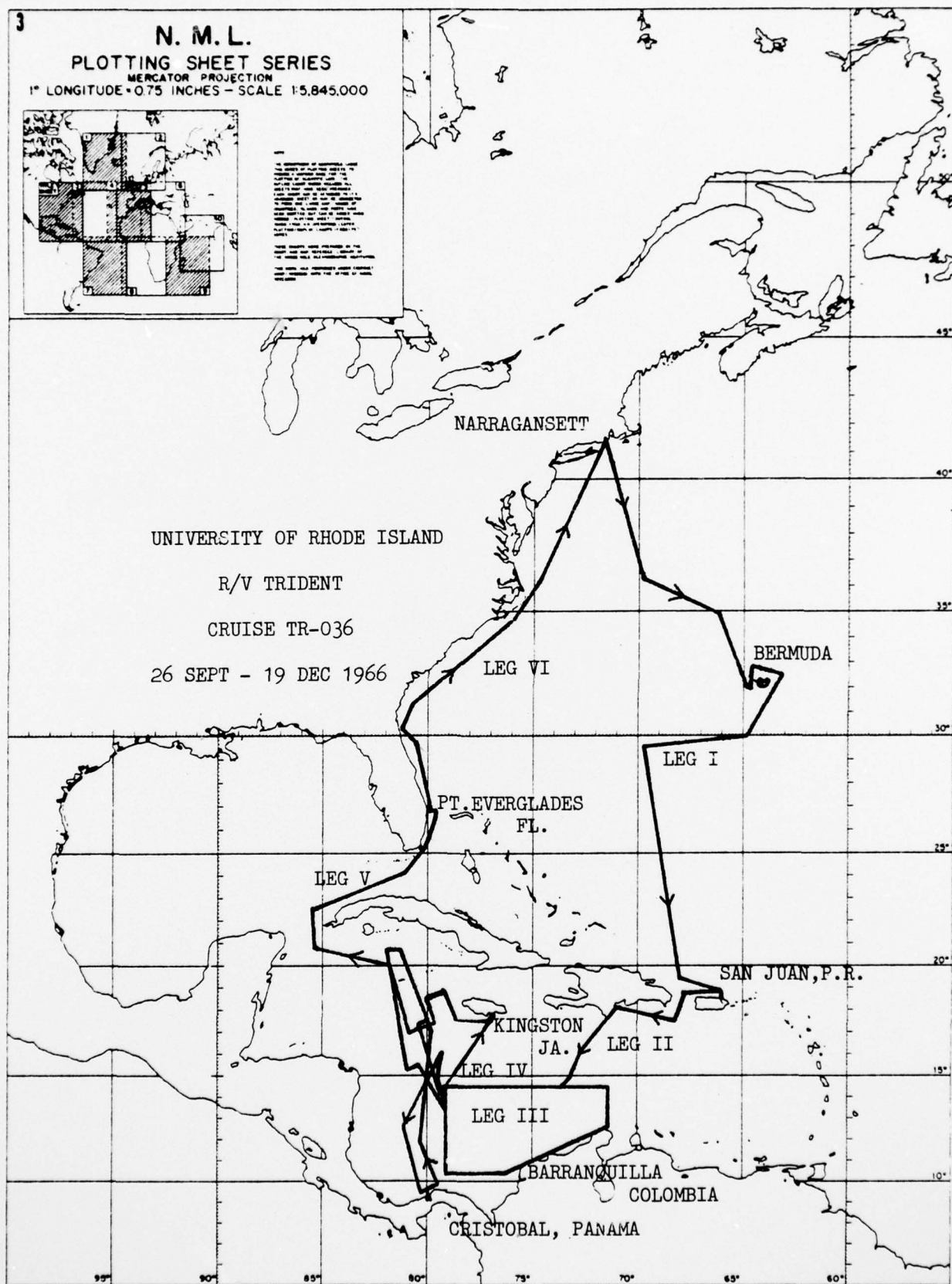
Dr. Dale C. Krause	Co-Chief Scientist	U.R.I.
Dr. James Corless	Co-Chief Scientist	U.R.I.
Dr. Jason Morgan	Professor	Princeton University
Dr. Keith Chave	Professor	Lehigh University
Mr. Arthur Buddington	Oceanographic Specialist	U.R.I.
Mr. Timothy Kennard	Oceanographic Specialist	U.R.I.
Mr. Paul Perkins	Oceanographic Specialist	U.R.I.
Ms. Susan Betzer	Graduate Student	U.R.I.
Mr. Peter Betzer	Graduate Student	U.R.I.
Mr. Stanley Cobb	Graduate Student	U.R.I.
Mr. Robert O. Fournier	Graduate Student	U.R.I.
Mr. David Hallett	Graduate Student	U.R.I.
Mr. James Hedberg	Graduate Student	Princeton University
Mr. Robert Howe	Graduate Student	U.R.I.
Mr. Bruce Keck	Graduate Student	U.R.I.
Mr. Ronald Lewis	Graduate Student	Princeton University
Ms. Bonnie McGregor	Graduate Student	U.R.I.
Mr. Donald Roy	Graduate Student	U.R.I.
Mr. Steve Smith	Graduate Student	Lehigh University
Mr. Ellsworth Wheeler	Graduate Student	U.R.I.

3

N. M. L.  
PLOTING SHEET SERIES  
MERCATOR PROJECTION  
1" LONGITUDE = 0.75 INCHES - SCALE 1:5,845,000



1. Symbols for land, water, and other features are defined in this block. The symbols include various line styles for coastlines, dashed lines for boundaries, and specific markers for islands and reefs. The text is small and difficult to read, but it appears to be a legend for the map's symbology.



R/V TRIDENT Cruises - CY 1967

Cruise No.	Dates	Days at Sea	Area of Operation	Chief Scientist/ Affiliation*
037	9 Mar - 10 May	60	North Atlantic	McMaster, Krause
038	23 June - 4 July	27	NW Atlantic	Krause
039	20-27 July	8	NW Atlantic	Napora, Miller
040	5-18 August	14	North Atlantic	Winn
041	20 Aug. - 1 Oct.	40	North Atlantic	Schilling, Krause
042	18-24 Oct.	7	NW Atlantic	Fish
043	26 Oct. - 2 Nov.	8	NW Atlantic	Napora
044	5-27 Nov.	21	NW Atlantic, Caribbean, Gulf of Panama	Frey
045	29 Nov. - 12 Dec.	14	Bahama Islands NW Atlantic	Marshall
046	14-23 Dec.	10	NW Atlantic	Perkins

\*A11 GSO/URI

AD-A047 655

RHODE ISLAND UNIV KINGSTON GRADUATE SCHOOL OF OCEANO--ETC F/6 13/10  
R/V TRIDENT CRUISE SUMMARIES CY 1962 THROUGH CY 1971.(U)  
NOV 77 E M WILLIAMS

N00014-76-C-0226

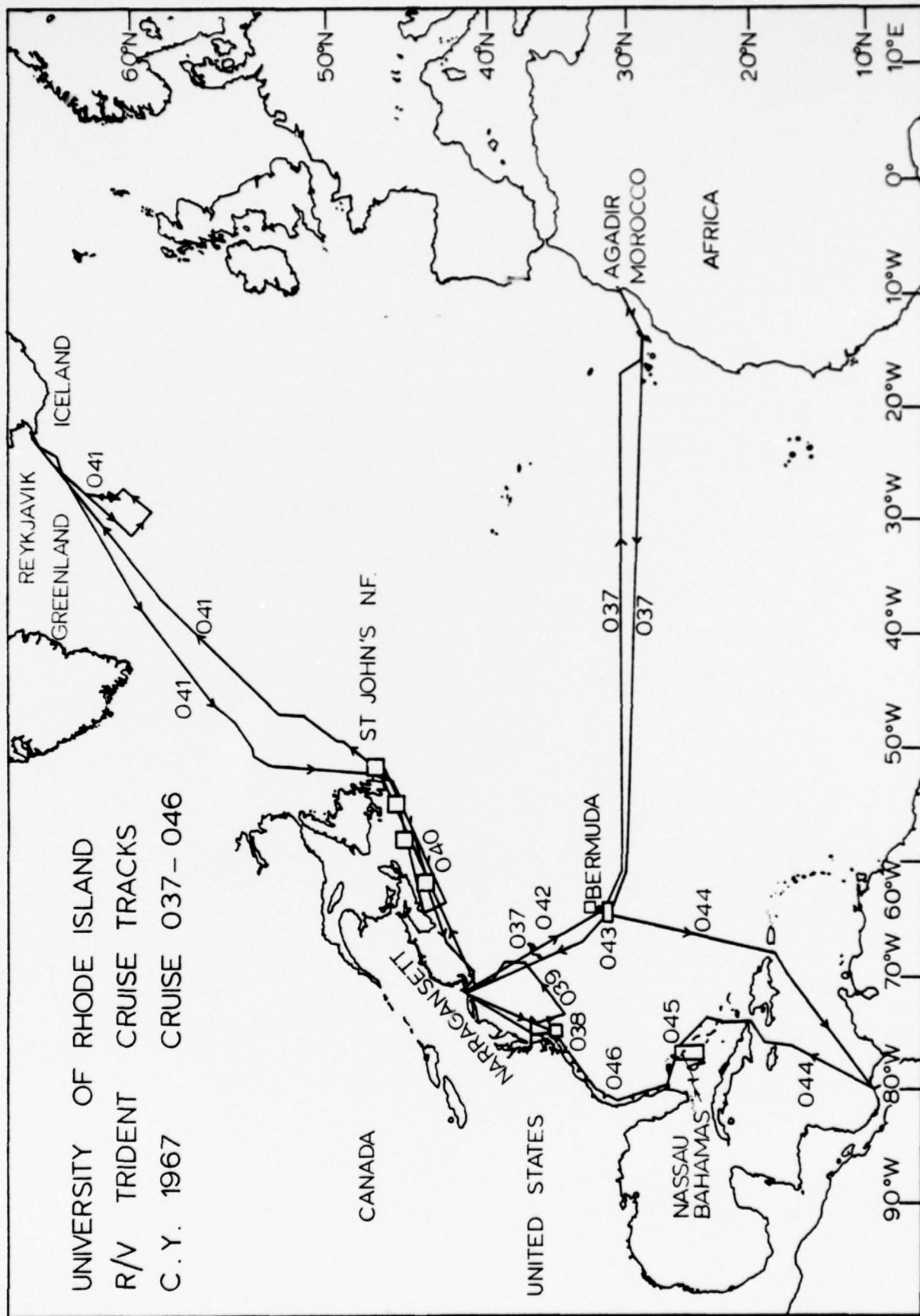
UNCLASSIFIED

URI/GSO-REF-77-4

NL

2 OF 3  
AD  
A047 655





Cruise No.: TR-037

Dates: 9 March - 10 May 1967

Area of Operation: Northwest and  
Northeast  
Atlantic Oceans

Days at sea: 60

Funding: ONR

### Program Description

The main purposes of this cruise were

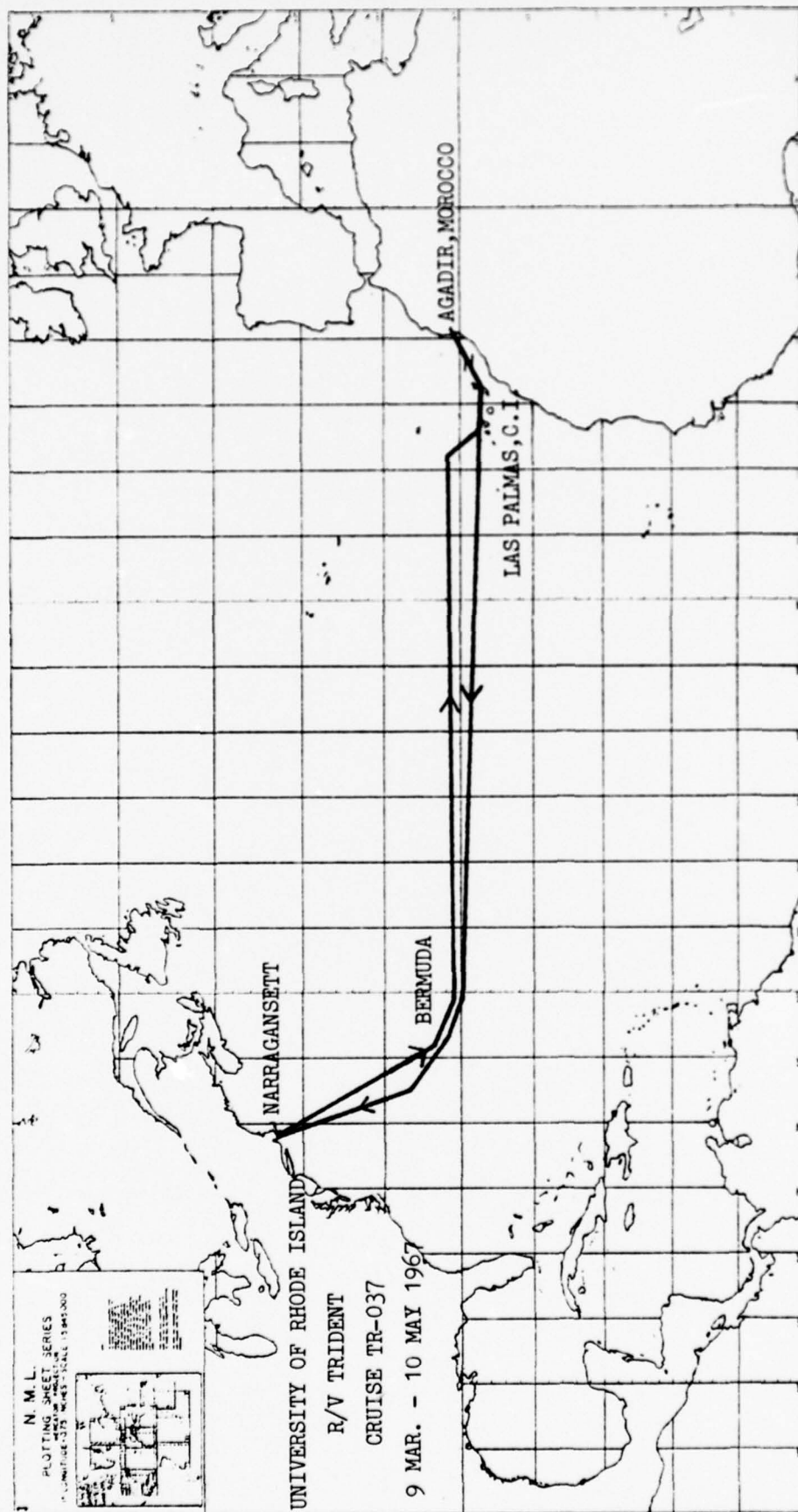
- a) to study the geological and geophysical characteristics off Morocco and on two transects across the North Atlantic Ocean
- b) to take plankton samples
- c) to study surface water samples for tritium tracers
- d) to make equipment tests

### Data Collected

- 1) 7,205 n.m. of bathymetric profiles were run
- 2) 6,995 n.m. of magnetics were run
- 3) 1,350 n.m. of seismic reflection profiles were taken
- 4) nine dredge stations were occupied
- 5) five grabs were taken
- 6) 22 surface water samples were taken to study tritium
- 7) 14 vertical plankton samples were collected
- 8) an experimental seismic reflection profiler was tested

### Participants

Dr. Robert McMaster	Co-Chief Scientist	U.R.I.
Dr. Dale Krause	Co-Chief Scientist	U.R.I.
Dr. Ryan Drum	Professor	U. of Massachusetts
Pedro Balle-Cruellas	Scientist	Instituto Espanio Oceanografica
Mr. Larry McDonald	Scientist	Raytheon Corp.
Mr. Arthur Buddington	Marine Technician	U.R.I.
Mr. Timothy Kennard	Marine Technician	U.R.I.
Mr. William Dillon	Graduate Student	U.R.I.
Mr. James Robb	Graduate Student	U.R.I.
Mr. George Walsh	Graduate Student	U.R.I.
Mr. Harold Marsh	Technician	U.R.I.
Mr. David Smith	Technician	U.R.I.
Ahmed Haddar Demnati	Scientist	Departement de la Geophysique, Direction des Mines et de la Geologie du Maroc



Cruise No.: TR-038

Dates: 23 June - 19 July 1967

Area of Operation: Northwest  
Atlantic Ocean

Days at sea: 27

Funding: ONR

#### Program Description

The main purpose of this cruise was

- a) to investigate the Gulf Stream off Cape Hatteras using hydrographic methods

#### Data Collected

- 1) 14 hydrographic stations were occupied
- 2) 147 XBT's were taken
- 3) 87 direct volume transport measurements were successful
- 4) five current meters were deployed with one current meter recovered

#### Participants

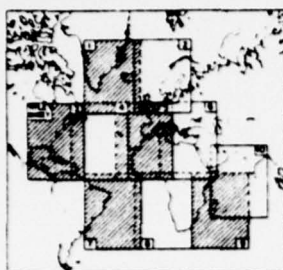
Dr. John A. Knauss	Chief Scientist	U.R.I.
Dr. Wilton Sturges III	Assistant Professor	U.R.I.
Mr. Philip Bedard	Electronics Engineer	U.R.I.
Mr. Robert K. Sexton	Senior Marine Technician	U.R.I.
Mr. Arthur Buddington	Marine Technician	U.R.I.
Mr. Timothy Kennard	Marine Technician	U.R.I.
Mr. James I. Sammons	Electronics Technician	U.R.I.
Mr. William Boicourt	Graduate Student	Johns Hopkins
Mr. Robert Cooke	Graduate Student	U.R.I.
Mr. Mark Houston	Graduate Student	Johns Hopkins
Mr. David Morgan	Graduate Student	U.R.I.
Mr. Philip L. Richardson	Graduate Student	U.R.I.
Mr. Charles F. Zimmerman	Student	Brown Univ.

N. M. L.

PLOTTING SHEET SERIES

MERCATOR PROJECTION

MERCATOR PROJECTION  
1° LONGITUDE = 0.75 INCHES - SCALE 1:5,845,000



THE INVESTIGATION OF RESEARCHERS LARGELY HAS CONCLUDED THAT THE DATA IN THE REPORT IS CREDIBLE. HOWEVER, THE REPORT'S CONCLUSIONS, WHICH THE DEFENSE LATER USED TO ARGUE THAT THE BOMBING WAS NOT A CONSPIRACY, ARE NOT NEARLY AS CREDIBLE. THE REPORT'S CONCLUSIONS ARE BASED ON THE ASSUMPTION THAT THE BOMBING WAS A CONSPIRACY. THE REPORT'S CONCLUSIONS ARE BASED ON THE ASSUMPTION THAT THE BOMBING WAS A CONSPIRACY. THE REPORT'S CONCLUSIONS ARE BASED ON THE ASSUMPTION THAT THE BOMBING WAS A CONSPIRACY.

## NARRAGANSETT

UNIVERSITY OF RHODE ISLAND

R/V TRIDENT

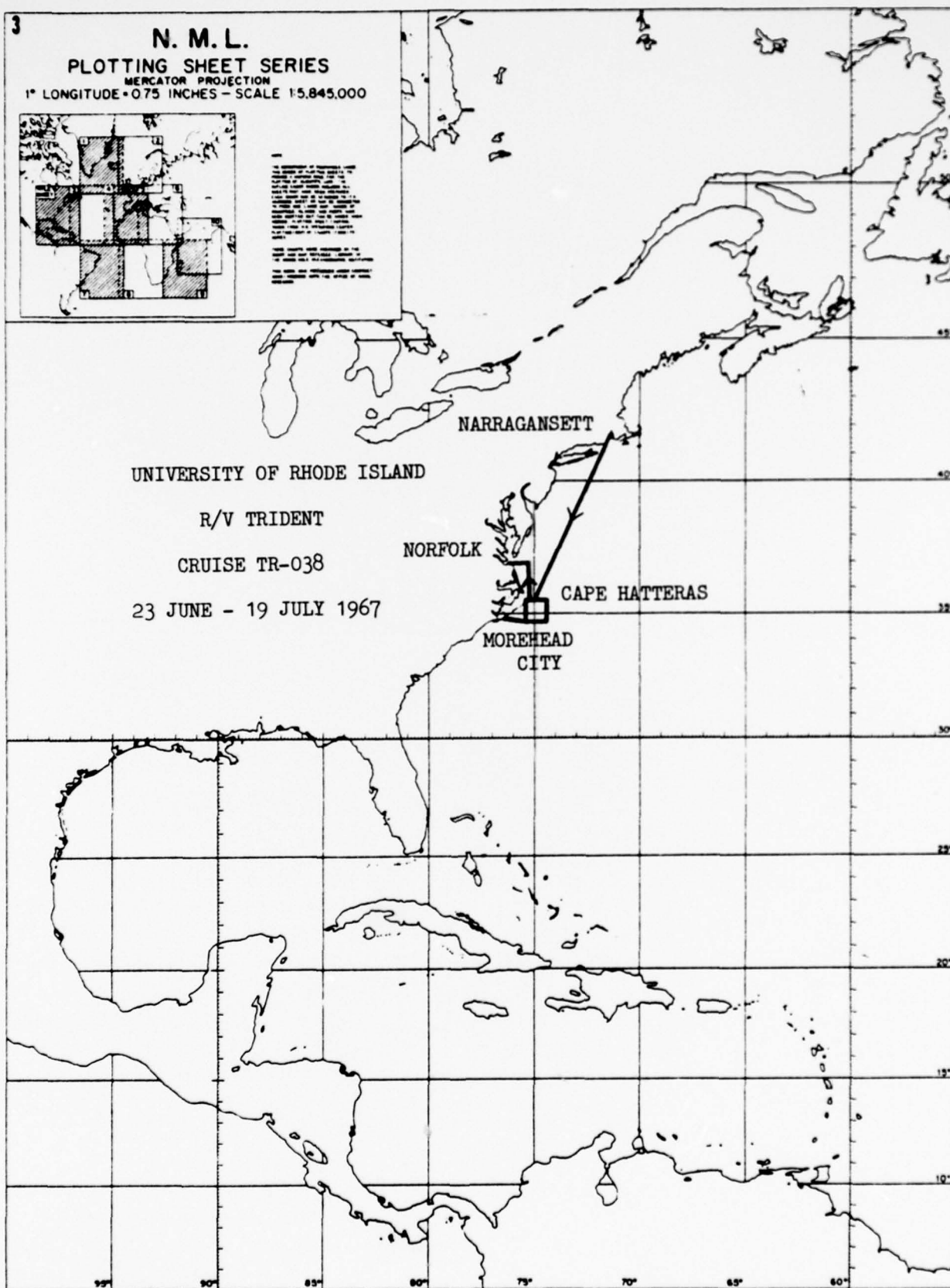
CRUISE TR-038

23 JUNE - 19 JULY 1967

NORFOLK

CAPE HATTERAS

MOREHEAD  
CITY



Cruise No.: TR-039

Dates: 20 - 27 July 1967

Area of Operation: Northwest  
Atlantic Ocean

Days at sea: 8

Funding: ONR

#### Program Description

The main purpose of this cruise was

- a) to acquaint oceanographic students with the various types of equipment used in over-the-side scientific studies

#### Data Collected

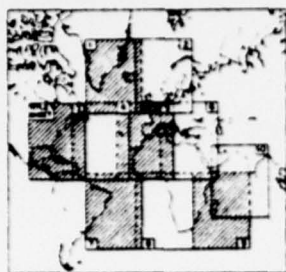
- 1) the main pieces of equipment used were: Nansen cast, Isaacs Kidd trawl, Clarke Bumpus sampler, piston and gravity corers and bottom camera

#### Participants

Dr. T. Napora	Co-Chief Scientist	U.R.I.
Mr. G. Miller	Co-Chief Scientist	U.R.I.
Mr. J. Frey	Research Associate	U.R.I.
Mr. L. Ardwin	Graduate Student	U.R.I.
Mr. N. Blake	Graduate Student	U.R.I.
Mr. C. Chee	Graduate Student	U.R.I.
Mr. J. Dawson	Graduate Student	U.R.I.
Mr. R. Fragalla	Graduate Student	U.R.I.
Mr. K. Lukas	Graduate Student	U.R.I.
Mr. J. Van Ryzin	Graduate Student	U.R.I.
Mr. R. Barletta	Student	U.R.I.
Mr. R. Izzo	Photographer	U.R.I.

3

N. M. L.  
PLOTING SHEET SERIES  
MERCATOR PROJECTION  
1" LONGITUDE = 0.75 INCHES - SCALE 1:5,845,000



1. NAME OF VESSEL  
2. NAME OF COMMANDER  
3. NAME OF CAPTAIN  
4. NAME OF FIRST OFFICER  
5. NAME OF SECOND OFFICER  
6. NAME OF THIRD OFFICER  
7. NAME OF FOURTH OFFICER  
8. NAME OF FIFTH OFFICER  
9. NAME OF SIXTH OFFICER  
10. NAME OF SEVENTH OFFICER  
11. NAME OF EIGHTH OFFICER  
12. NAME OF NINTH OFFICER  
13. NAME OF TENTH OFFICER  
14. NAME OF ELEVENTH OFFICER  
15. NAME OF TWELFTH OFFICER  
16. NAME OF THIRTEENTH OFFICER  
17. NAME OF FOURTEENTH OFFICER  
18. NAME OF FIFTEENTH OFFICER  
19. NAME OF SIXTEENTH OFFICER  
20. NAME OF SEVENTEENTH OFFICER  
21. NAME OF EIGHTEENTH OFFICER  
22. NAME OF NINETEENTH OFFICER  
23. NAME OF TWENTIETH OFFICER  
24. NAME OF TWENTY-FIRST OFFICER  
25. NAME OF TWENTY-SECOND OFFICER  
26. NAME OF TWENTY-THIRD OFFICER  
27. NAME OF TWENTY-FOURTH OFFICER  
28. NAME OF TWENTY-FIFTH OFFICER  
29. NAME OF TWENTY-SIXTH OFFICER  
30. NAME OF TWENTY-SEVENTH OFFICER  
31. NAME OF TWENTY-EIGHTH OFFICER  
32. NAME OF TWENTY-NINTH OFFICER  
33. NAME OF THIRTIETH OFFICER  
34. NAME OF THIRTY-FIRST OFFICER  
35. NAME OF THIRTY-SECOND OFFICER  
36. NAME OF THIRTY-THIRD OFFICER  
37. NAME OF THIRTY-FOURTH OFFICER  
38. NAME OF THIRTY-FIFTH OFFICER  
39. NAME OF THIRTY-SIXTH OFFICER  
40. NAME OF THIRTY-SEVENTH OFFICER  
41. NAME OF THIRTY-EIGHTH OFFICER  
42. NAME OF THIRTY-NINTH OFFICER  
43. NAME OF FORTIETH OFFICER  
44. NAME OF FORTY-FIRST OFFICER  
45. NAME OF FORTY-SECOND OFFICER  
46. NAME OF FORTY-THIRD OFFICER  
47. NAME OF FORTY-FOURTH OFFICER  
48. NAME OF FORTY-FIFTH OFFICER  
49. NAME OF FORTY-SIXTH OFFICER  
50. NAME OF FORTY-SEVENTH OFFICER  
51. NAME OF FORTY-EIGHTH OFFICER  
52. NAME OF FORTY-NINTH OFFICER  
53. NAME OF FIFTIETH OFFICER  
54. NAME OF FIFTY-FIRST OFFICER  
55. NAME OF FIFTY-SECOND OFFICER  
56. NAME OF FIFTY-THIRD OFFICER  
57. NAME OF FIFTY-FOURTH OFFICER  
58. NAME OF FIFTY-FIFTH OFFICER  
59. NAME OF FIFTY-SIXTH OFFICER  
60. NAME OF FIFTY-SEVENTH OFFICER  
61. NAME OF FIFTY-EIGHTH OFFICER  
62. NAME OF FIFTY-NINTH OFFICER  
63. NAME OF SIXTIETH OFFICER  
64. NAME OF SIXTY-FIRST OFFICER  
65. NAME OF SIXTY-SECOND OFFICER  
66. NAME OF SIXTY-THIRD OFFICER  
67. NAME OF SIXTY-FOURTH OFFICER  
68. NAME OF SIXTY-FIFTH OFFICER  
69. NAME OF SIXTY-SIXTH OFFICER  
70. NAME OF SIXTY-SEVENTH OFFICER  
71. NAME OF SIXTY-EIGHTH OFFICER  
72. NAME OF SIXTY-NINTH OFFICER  
73. NAME OF SEVENTIETH OFFICER  
74. NAME OF SEVENTY-FIRST OFFICER  
75. NAME OF SEVENTY-SECOND OFFICER  
76. NAME OF SEVENTY-THIRD OFFICER  
77. NAME OF SEVENTY-FOURTH OFFICER  
78. NAME OF SEVENTY-FIFTH OFFICER  
79. NAME OF SEVENTY-SIXTH OFFICER  
80. NAME OF SEVENTY-SEVENTH OFFICER  
81. NAME OF SEVENTY-EIGHTH OFFICER  
82. NAME OF SEVENTY-NINTH OFFICER  
83. NAME OF EIGHTIETH OFFICER  
84. NAME OF EIGHTY-FIRST OFFICER  
85. NAME OF EIGHTY-SECOND OFFICER  
86. NAME OF EIGHTY-THIRD OFFICER  
87. NAME OF EIGHTY-FOURTH OFFICER  
88. NAME OF EIGHTY-FIFTH OFFICER  
89. NAME OF EIGHTY-SIXTH OFFICER  
90. NAME OF EIGHTY-SEVENTH OFFICER  
91. NAME OF EIGHTY-EIGHTH OFFICER  
92. NAME OF EIGHTY-NINTH OFFICER  
93. NAME OF NINETYETH OFFICER  
94. NAME OF NINETY-FIRST OFFICER  
95. NAME OF NINETY-SECOND OFFICER  
96. NAME OF NINETY-THIRD OFFICER  
97. NAME OF NINETY-FOURTH OFFICER  
98. NAME OF NINETY-FIFTH OFFICER  
99. NAME OF NINETY-SIXTH OFFICER  
100. NAME OF NINETY-SEVENTH OFFICER  
101. NAME OF NINETY-EIGHTH OFFICER  
102. NAME OF NINETY-NINTH OFFICER  
103. NAME OF HUNDRETH OFFICER

UNIVERSITY OF RHODE ISLAND

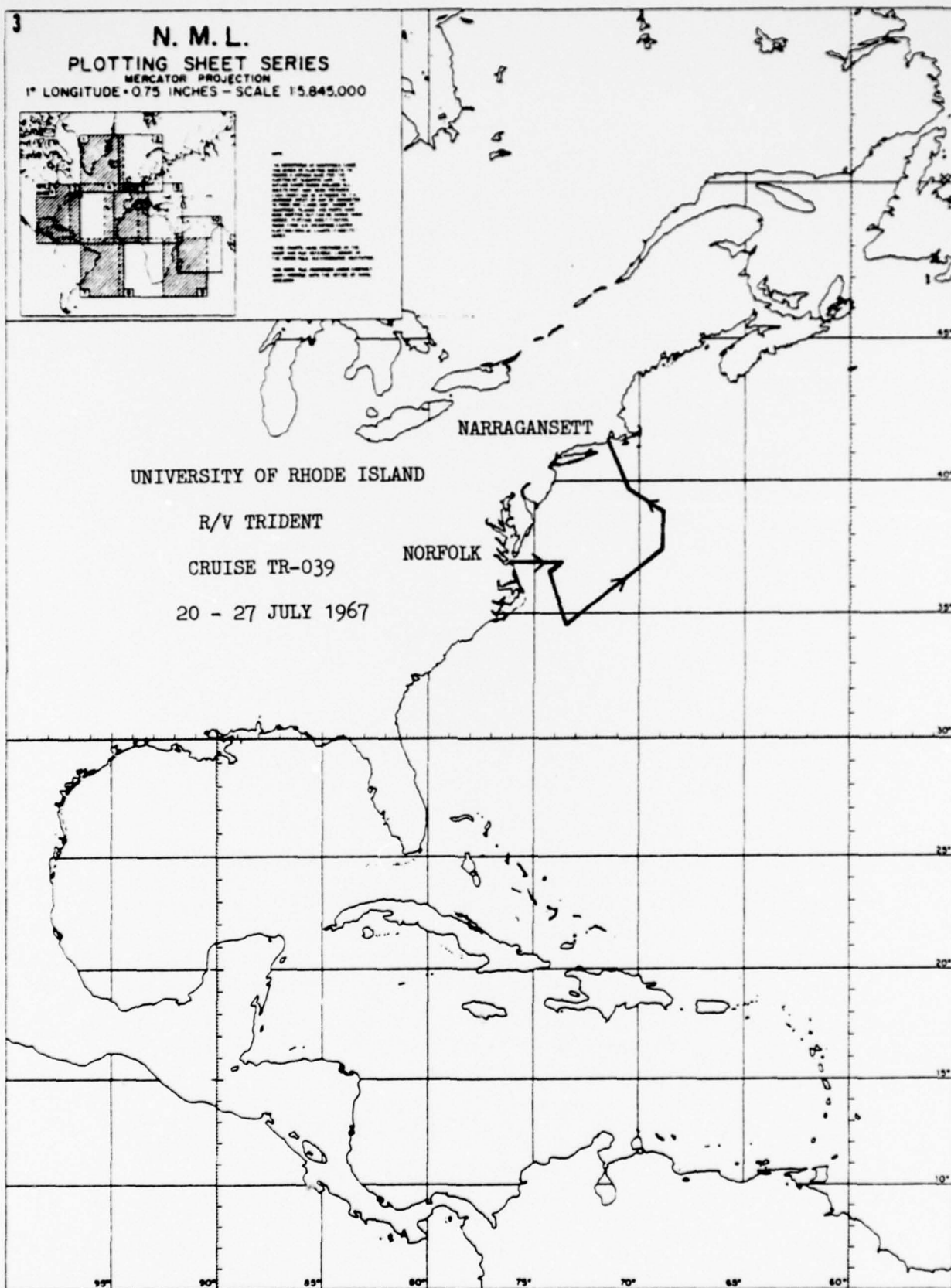
R/V TRIDENT

CRUISE TR-039

20 - 27 JULY 1967

NARRAGANSETT

NORFOLK



Cruise No.: TR-040

Dates: 5 - 18 August 1967

Area of Operation: North  
Atlantic Ocean

Days at sea: 14

Funding: ONR, NSF

#### Program Description

The main purposes of this cruise were

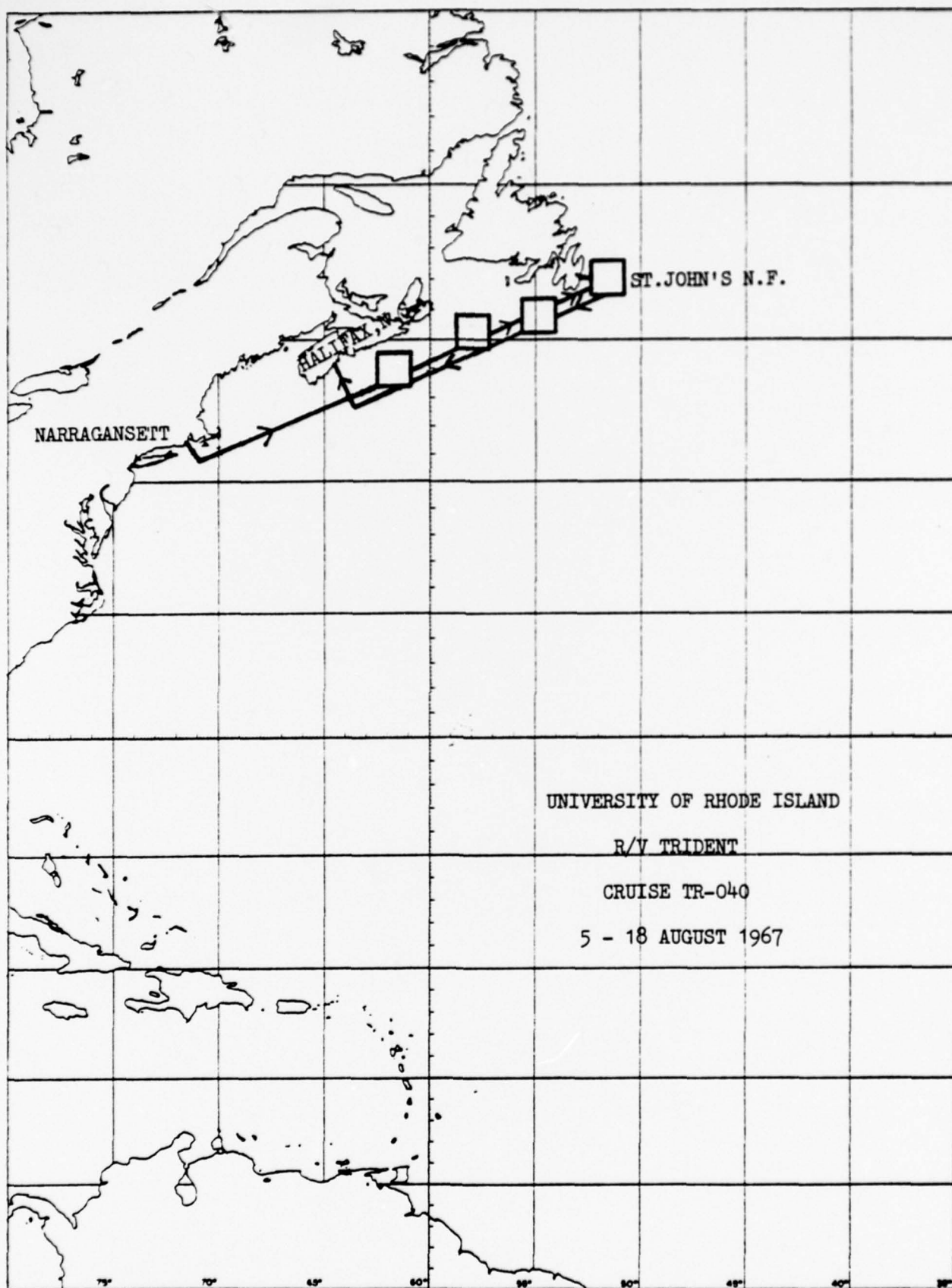
- a) to record/transmit sounds of whale and porpoises
- b) to maintain whale, porpoise and fish watches, and attempt to catch porpoise
- c) to collect eels, fish and squid
- d) to set longlines for various fish

#### Data Collected

- 1) four record/transmit stations were occupied
- 2) the porpoise catching/survival technique was used
- 3) whale and porpoise watches were maintained

#### Participants

Dr. Howard E. Winn	Chief Scientist	U.R.I.
Mr. Paul J. Perkins	Oceanographic Specialist	U.R.I.
Mr. Raymond Kenney	Technical Assistant	U.R.I.
Mr. James Pratt	Technical Assistant	U.R.I.
Mr. David Morgan	Graduate Student	U.R.I.
Mr. Thayer Shafer	Graduate Student	U.R.I.
Mr. Bruce Thunberg	Graduate Student	U.R.I.



Cruise no.: TR-041

Dates: 20 August - 1 October 1967

Area of Operation: North  
Atlantic Ocean

Days at sea: 40

Funding: ONR

#### Program Description

The main purpose of this cruise was

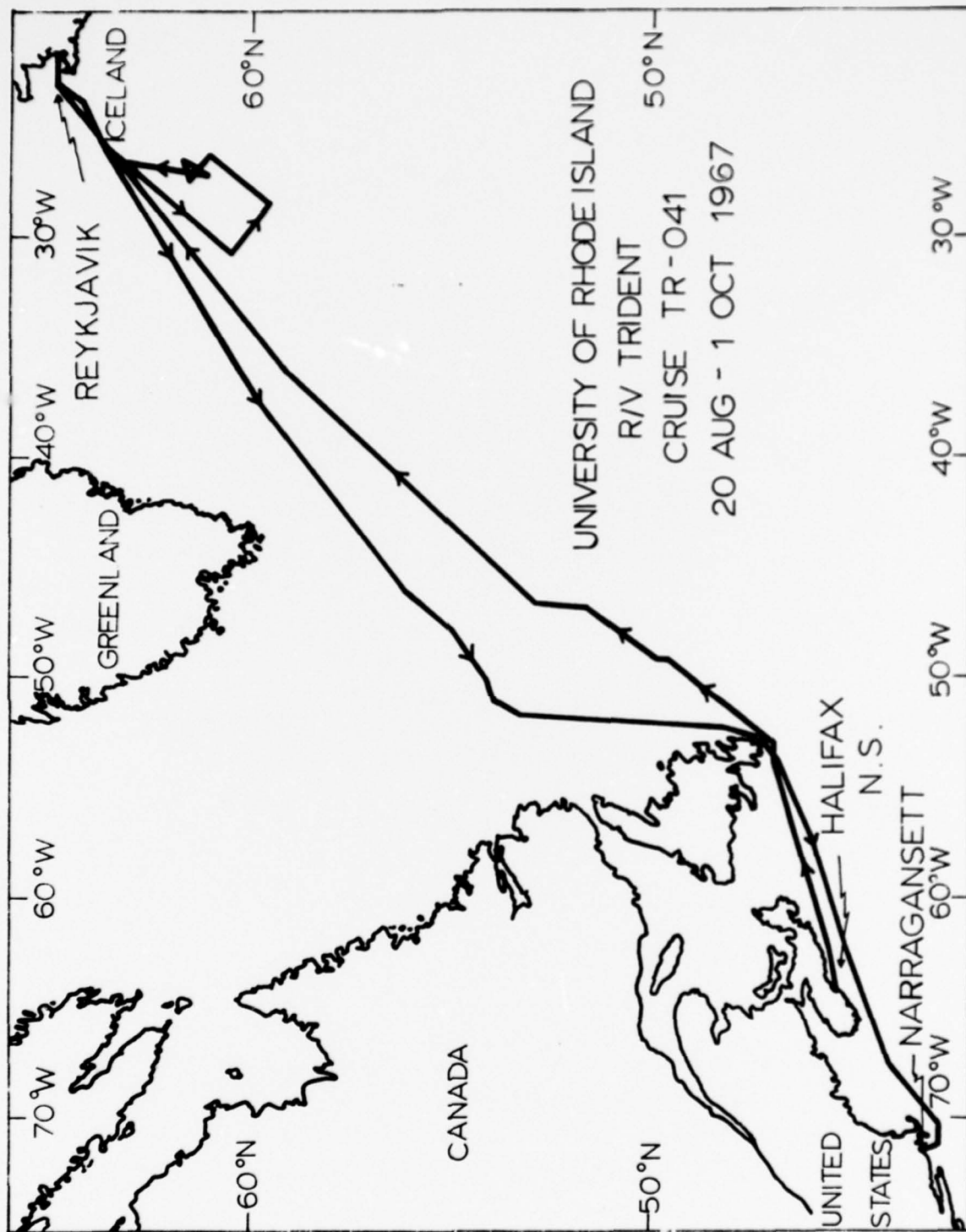
- a) to perform a detailed geological, geochemical and geophysical study of the Reykjanes Ridge

#### Data Collected

- 1) 5,700 n.m. each of bathymetric and magnetic profiles were run
- 2) 150 n.m. of seismic reflection profiles were obtained
- 3) 22 dredges were recovered
- 4) 14 camera stations were occupied
- 5) two cores were taken
- 6) 10 heatflow measurements were made

#### Participants

Dr. Jean-Guy Schilling	Co-Chief Scientist	U.R.I.
Dr. Dale Krause	Co-Chief Scientist	U.R.I.
Dr. Ki-iti Horai	Geophysicist	M.I.T.
Dr. James Moore	Volcanologist	U.S.G.S.
Dr. Gregory Webb	Geologist	U. of Mass.
Mr. Karlis Muehlenbachs	Geochemist	U. of Chicago
Ms. Mary Chessman	Graduate Student	M.I.T.
Mr. Arthur Buddington	Oceanographic Specialist	U.R.I.
Mr. Timothy Kennard	Oceanographic Specialist	U.R.I.
Mr. Robert Cooke	Graduate Student	U.R.I.
Mr. Thomas Johnston	Graduate Student	U.R.I.
Ms. Bonnie McGregor	Graduate Student	U.R.I.
Mr. David Pope	Graduate Student	U.R.I.



Cruise No.: TR-042

Dates: 18 - 24 October 1967

Area of Operation: Northwest  
Atlantic Ocean

Days at sea: 7

Funding: ONR, NSF

#### Program Description

The main purposes of this cruise were .

- a) to perform bioacoustic studies
- b) to maintain whale and porpoise watches
- c) to field test plankton nets

#### Data Collected

- 1) two plankton net tows were made
- 2) the ship program was limited because of winch problems and hurricane warnings

#### Participants

Dr. Charles J. Fish	Chief Scientist	U.R.I.
Mr. Paul J. Perkins	Oceanographic Specialist	U.R.I.
Mr. Arthur B. Buddington	Oceanographic Specialist	U.R.I.
Mr. Howard J. Russell	Graduate Student	U.R.I.

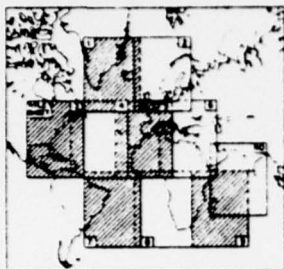
3

N. M. L.

PLOTING SHEET SERIES

MERCATOR PROJECTION

1° LONGITUDE = 0.75 INCHES - SCALE 1:5,845,000



NOTE: This sheet is part of a series of plotting sheets covering the North Atlantic Ocean. The sheets are numbered 1 through 10, and are arranged in a grid. The sheet number is indicated by the number in the top left corner of the sheet.

NARRAGANSETT

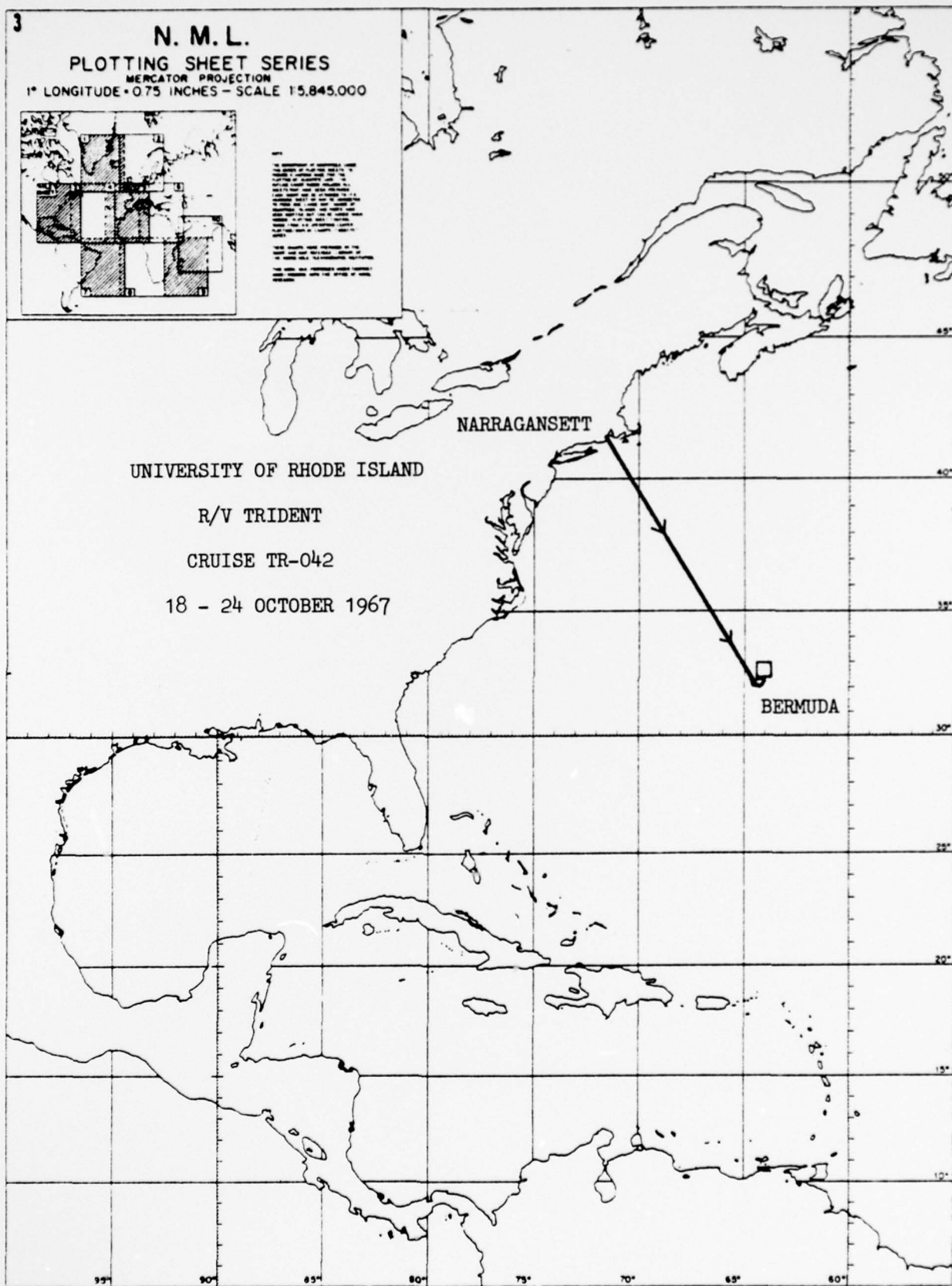
UNIVERSITY OF RHODE ISLAND

R/V TRIDENT

CRUISE TR-042

18 - 24 OCTOBER 1967

BERMUDA



Cruise No.: TR-043

Dates: 26 October - 2 November 1967

Area of Operation: Northwest  
Atlantic Ocean

Days at sea: 8

Funding: ONR

#### Program Description

The main purposes of this cruise were

- a) to partake in the initiation of the Ocean Acre Program during which extensive serial biological studies will be made
- b) to study a modified trawl design

#### Data Collected

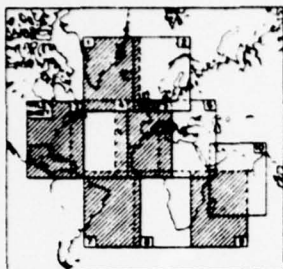
- 1) thirty-one trawls were taken
- 2) two hydrographic stations were occupied
- 3) 10 XBT's were taken
- 4) two pumping stations were occupied

#### Participants

Dr. Theodore A. Napora	Chief Scientist	U.R.I.
Mr. Paul Perkins	Oceanographic Specialist	U.R.I.
Mr. Arthur Buddington	Marine Technician	U.R.I.
Mr. Robert Gibbs	Student	Smithsonian Institution
Mr. Clyde Roper	Student	Smithsonian Institution
Mr. Richard Goodyear	Graduate Student	George Washington University
Mr. Gerard R. Miller, Jr.	Graduate Student	U.R.I.
Mr. William Krueger	Student	U.R.I.

3

N. M. L.  
PLOTting SHEET SERIES  
MERCATOR PROJECTION  
1" LONGITUDE = 0.75 INCHES - SCALE 1:5,845,000



1. Symbols for land, water, and ice are as shown in the legend.  
2. Symbols for depth are as shown in the legend.  
3. Symbols for soundings are as shown in the legend.  
4. Symbols for currents are as shown in the legend.  
5. Symbols for magnetic variation are as shown in the legend.  
6. Symbols for magnetic declination are as shown in the legend.  
7. Symbols for magnetic variation are as shown in the legend.  
8. Symbols for magnetic declination are as shown in the legend.  
9. Symbols for magnetic variation are as shown in the legend.  
10. Symbols for magnetic declination are as shown in the legend.

UNIVERSITY OF RHODE ISLAND

R/V TRIDENT

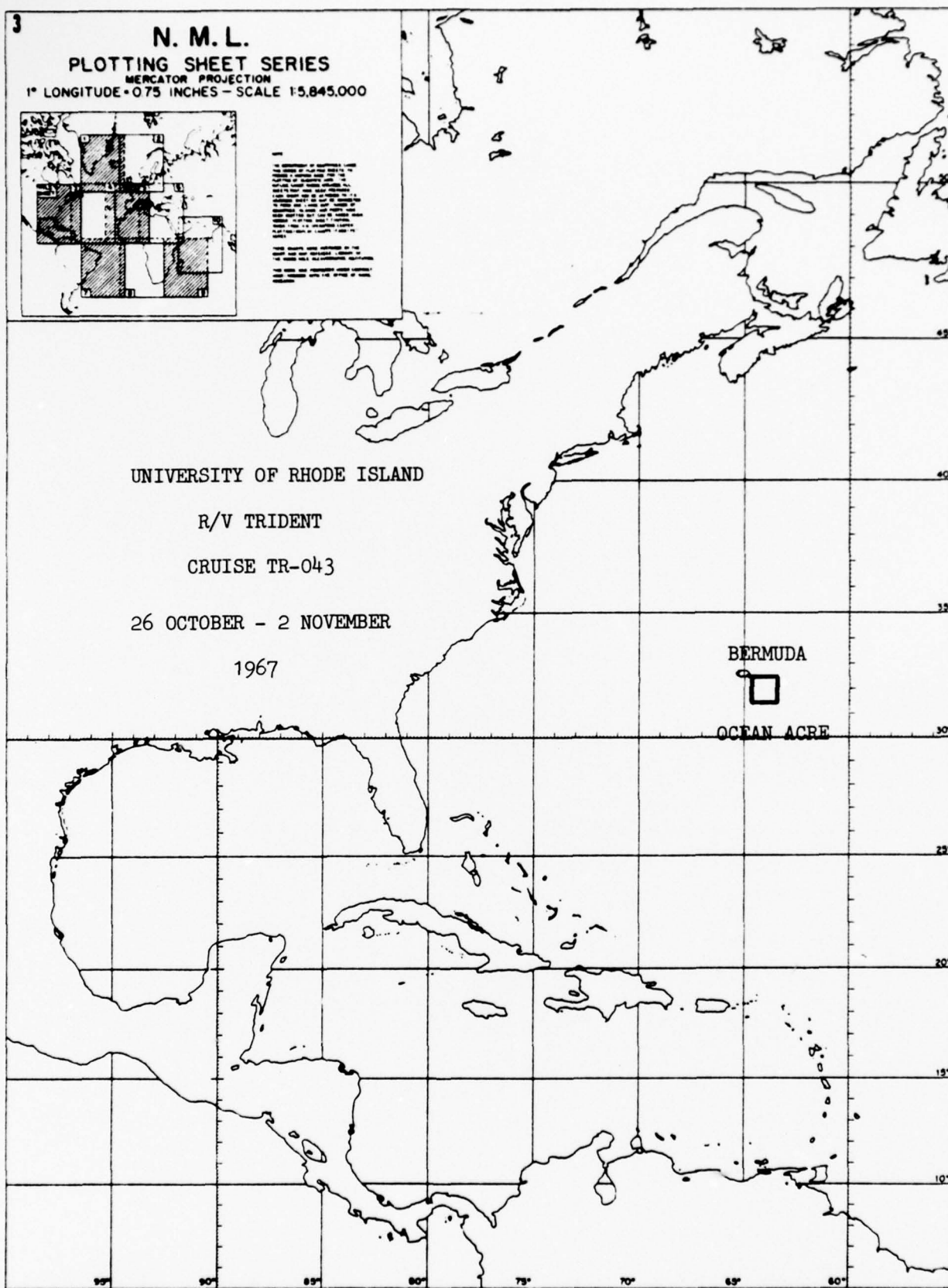
CRUISE TR-043

26 OCTOBER - 2 NOVEMBER

1967

BERMUDA

OCEAN ACRE



Cruise No.: TR-044

Dates: 5 - 27 November 1967

Days at sea: 21

Funding: ONR

Area of Operation: Northwest  
Atlantic Ocean,  
Caribbean Sea and  
Gulf of Panama

#### Program Description

The main purposes of this cruise were

- a) to take biological and hydrographic samples
- b) to obtain geological and geophysical data

#### Data Collected

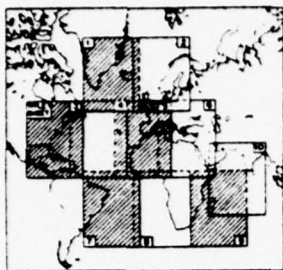
- 1) 33 hydrographic stations were occupied
- 2) four sea surface samples were taken
- 3) 12 biological tows were made
- 4) 1,560 n.m. each of bathymetric and magnetic profiles were run
- 5) four cores were obtained

#### Participants

Mr. James Frey	Chief Scientist	U.R.I.
Dr. Michael Pilson	Assistant Professor	U.R.I.
Mr. Arthur Buddington	Marine Technician	U.R.I.
Mr. Timothy Kennard	Marine Technician	U.R.I.
Mr. Kent Fanning	Graduate Student	U.R.I.
Mr. David Johnson	Graduate Student	U.R.I.

3

N. M. L.  
PLOTING SHEET SERIES  
MERCATOR PROJECTION  
1" LONGITUDE = 0.75 INCHES - SCALE 1:5,845,000



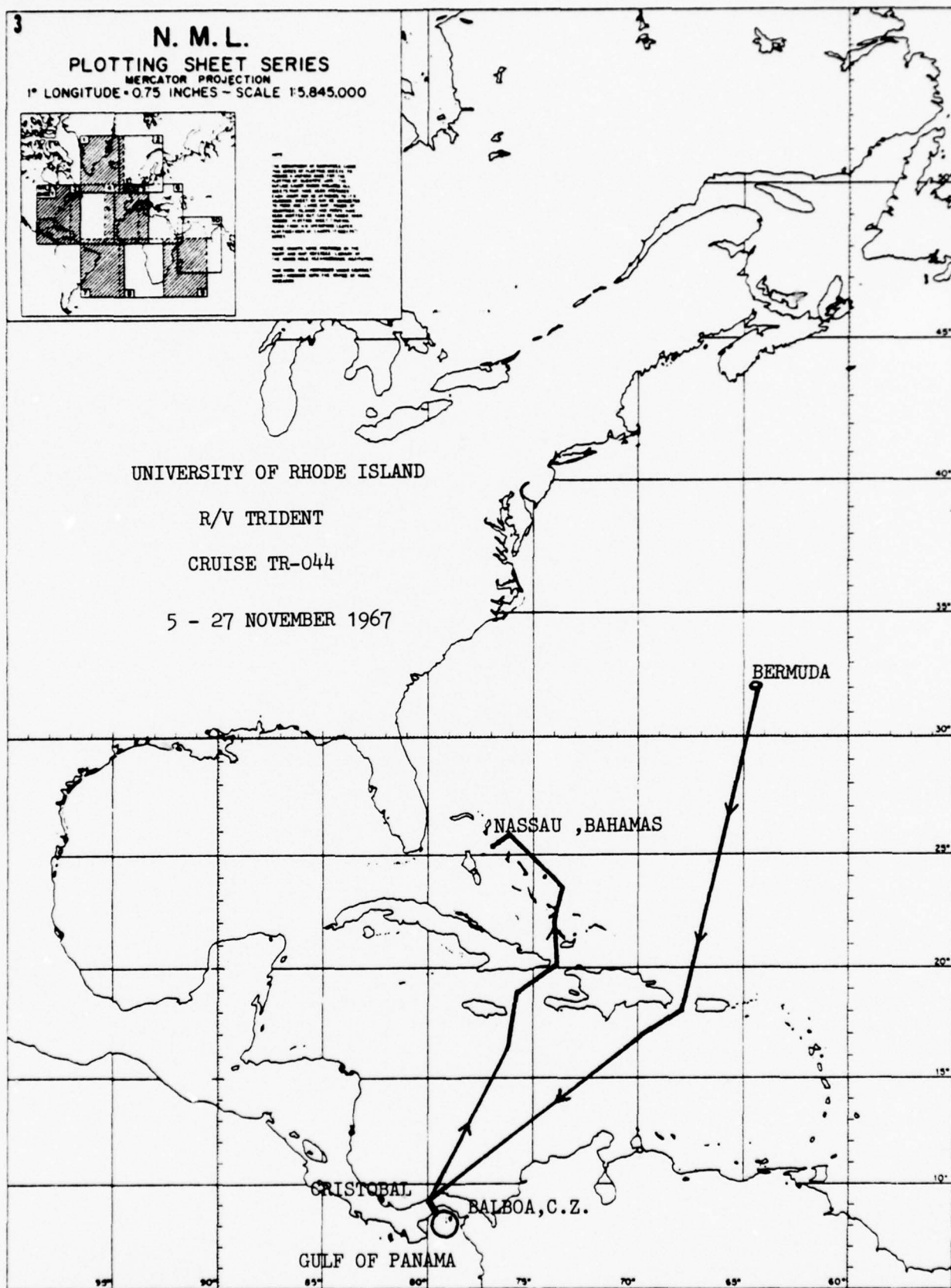
1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60  
61  
62  
63  
64  
65  
66  
67  
68  
69  
70  
71  
72  
73  
74  
75  
76  
77  
78  
79  
80  
81  
82  
83  
84  
85  
86  
87  
88  
89  
90  
91  
92  
93  
94  
95  
96  
97  
98  
99  
100

UNIVERSITY OF RHODE ISLAND

R/V TRIDENT

CRUISE TR-044

5 - 27 NOVEMBER 1967



Cruise No.: TR-045

Dates: 29 November - 12 December 1967 Area of Operation: Bahama Islands

Days at sea: 14 and Northwest Atlantic Ocean

Funding: NSF

#### Program Description

The main purposes of this cruise were

- a) to observe the utilization of nutrients and various forms of particulate food in the nourishment of coral reef communities

#### Data Collected

- 1) six chemical/biological sampling stations were occupied
- 2) many coral reef and lagoon studies were made

#### Participants

Dr. Nelson Marshall	Chief Scientist	U.R.I.
Dr. Michael Pilson	Assistant Professor	U.R.I.
Dr. R. E. Johannes	Professor	U. of Georgia
Dr. Philip Helfrich	Associate Director	Hawaii Inst. of Marine Biology
Dr. Kenneth L. Webb	Assistant Professor	Virginia Inst. of Marine Science
Dr. William J. Wiebe	Assistant Professor	U. of Georgia
Mr. Timothy Kennard	Marine Technician	U.R.I.
Ms. B. A. Mitchell-Innes	Graduate Student	U.R.I.
Mr. Allen C. Myers	Graduate Student	U.R.I.
Ms. Karen J. Lukas	Graduate Student	U.R.I.
Mr. Stephen Coles	Graduate Student	U.R.I.

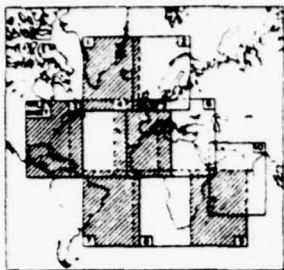
3

N. M. L.

## PLOTING SHEET SERIES

MERCATOR PROJECTION

1" LONGITUDE = 0.75 INCHES - SCALE 1:5,845,000



1. All observations shall be plotted on this sheet.  
2. All observations shall be plotted on this sheet.  
3. All observations shall be plotted on this sheet.  
4. All observations shall be plotted on this sheet.  
5. All observations shall be plotted on this sheet.  
6. All observations shall be plotted on this sheet.  
7. All observations shall be plotted on this sheet.  
8. All observations shall be plotted on this sheet.  
9. All observations shall be plotted on this sheet.  
10. All observations shall be plotted on this sheet.

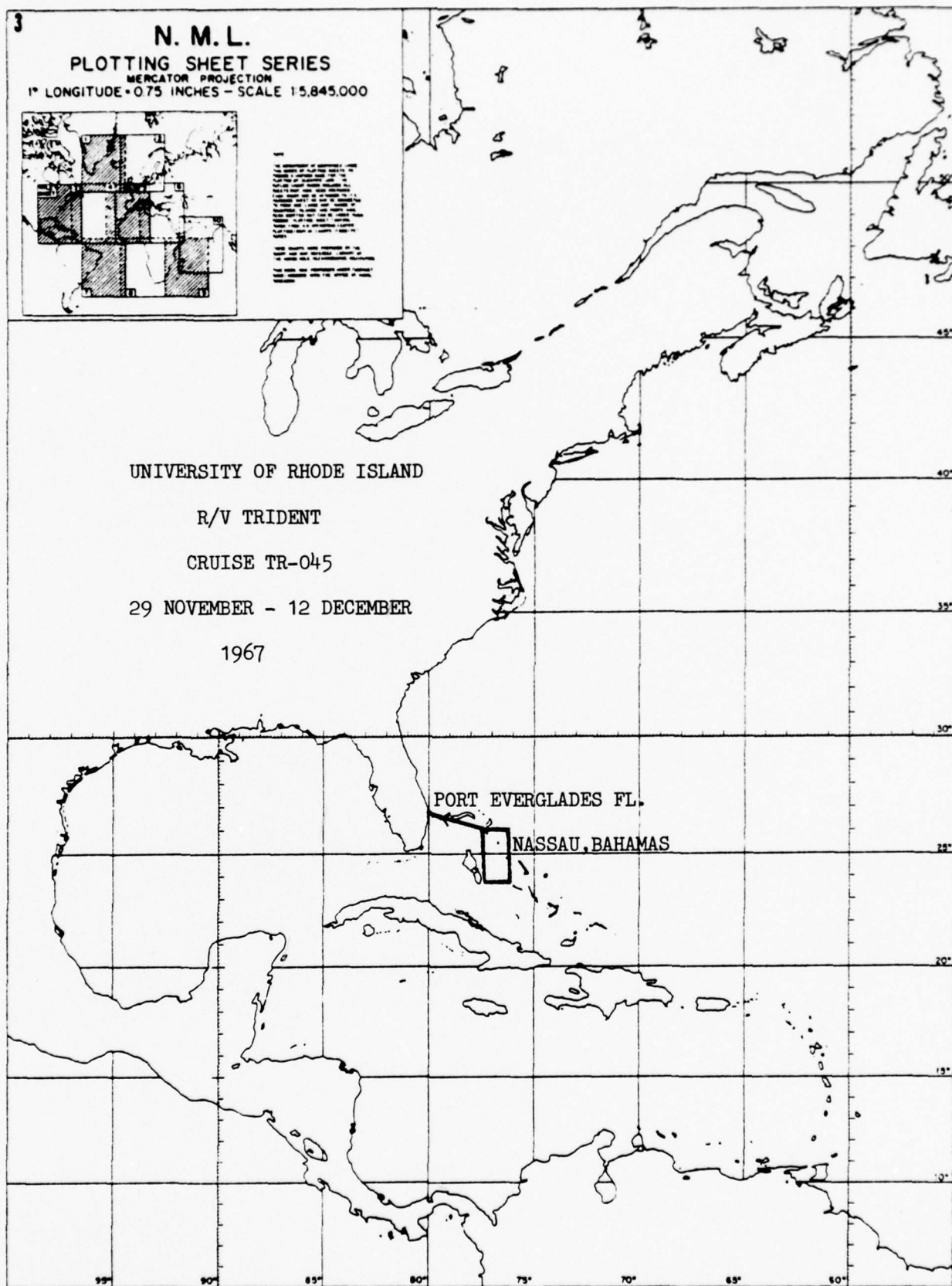
UNIVERSITY OF RHODE ISLAND

R/V TRIDENT

CRUISE TR-045

29 NOVEMBER - 12 DECEMBER

1967



Cruise No.: TR-046

Dates: 14 - 23 December 1967

Area of Operation: Northwest  
Atlantic Ocean

Days at sea: 10

Funding: ONR, NSF

#### Program Description

The main purposes of this cruise were

- a) to perform bioacoustical surveys of whales, porpoises and fish
- b) to maintain whale and porpoise watches
- c) to catch eels and other fish

#### Data Collected

- 1) nine listen/record stations were occupied
- 2) fish catches were made
- 3) whale and porpoise watches were maintained

#### Participants

Mr. Paul J. Perkins  
Mr. Timothy Kennard

Chief Scientist  
Oceanographic Specialist

U.R.I.  
U.R.I.

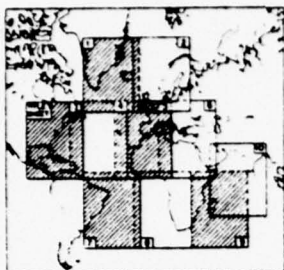
3

N. M. L.

## PLOTING SHEET SERIES

MERCATOR PROJECTION

1" LONGITUDE = 0.75 INCHES - SCALE 1:5,845,000



1. Name of vessel  
2. Name of commanding officer  
3. Name of observer  
4. Name of sponsor  
5. Date of cruise  
6. Duration of cruise  
7. Area of cruise  
8. Nature of cruise  
9. Name of ship's company  
10. Name of ship's agent  
11. Name of ship's home port  
12. Name of ship's home base  
13. Name of ship's home country  
14. Name of ship's home port  
15. Name of ship's home base  
16. Name of ship's home country  
17. Name of ship's home port  
18. Name of ship's home base  
19. Name of ship's home country  
20. Name of ship's home port  
21. Name of ship's home base  
22. Name of ship's home country  
23. Name of ship's home port  
24. Name of ship's home base  
25. Name of ship's home country  
26. Name of ship's home port  
27. Name of ship's home base  
28. Name of ship's home country  
29. Name of ship's home port  
30. Name of ship's home base  
31. Name of ship's home country  
32. Name of ship's home port  
33. Name of ship's home base  
34. Name of ship's home country  
35. Name of ship's home port  
36. Name of ship's home base  
37. Name of ship's home country  
38. Name of ship's home port  
39. Name of ship's home base  
40. Name of ship's home country  
41. Name of ship's home port  
42. Name of ship's home base  
43. Name of ship's home country  
44. Name of ship's home port  
45. Name of ship's home base  
46. Name of ship's home country  
47. Name of ship's home port  
48. Name of ship's home base  
49. Name of ship's home country  
50. Name of ship's home port  
51. Name of ship's home base  
52. Name of ship's home country  
53. Name of ship's home port  
54. Name of ship's home base  
55. Name of ship's home country  
56. Name of ship's home port  
57. Name of ship's home base  
58. Name of ship's home country  
59. Name of ship's home port  
60. Name of ship's home base  
61. Name of ship's home country  
62. Name of ship's home port  
63. Name of ship's home base  
64. Name of ship's home country  
65. Name of ship's home port  
66. Name of ship's home base  
67. Name of ship's home country  
68. Name of ship's home port  
69. Name of ship's home base  
70. Name of ship's home country  
71. Name of ship's home port  
72. Name of ship's home base  
73. Name of ship's home country  
74. Name of ship's home port  
75. Name of ship's home base  
76. Name of ship's home country  
77. Name of ship's home port  
78. Name of ship's home base  
79. Name of ship's home country  
80. Name of ship's home port  
81. Name of ship's home base  
82. Name of ship's home country  
83. Name of ship's home port  
84. Name of ship's home base  
85. Name of ship's home country  
86. Name of ship's home port  
87. Name of ship's home base  
88. Name of ship's home country  
89. Name of ship's home port  
90. Name of ship's home base  
91. Name of ship's home country  
92. Name of ship's home port  
93. Name of ship's home base  
94. Name of ship's home country  
95. Name of ship's home port  
96. Name of ship's home base  
97. Name of ship's home country  
98. Name of ship's home port  
99. Name of ship's home base  
100. Name of ship's home country

NARRAGANSETT

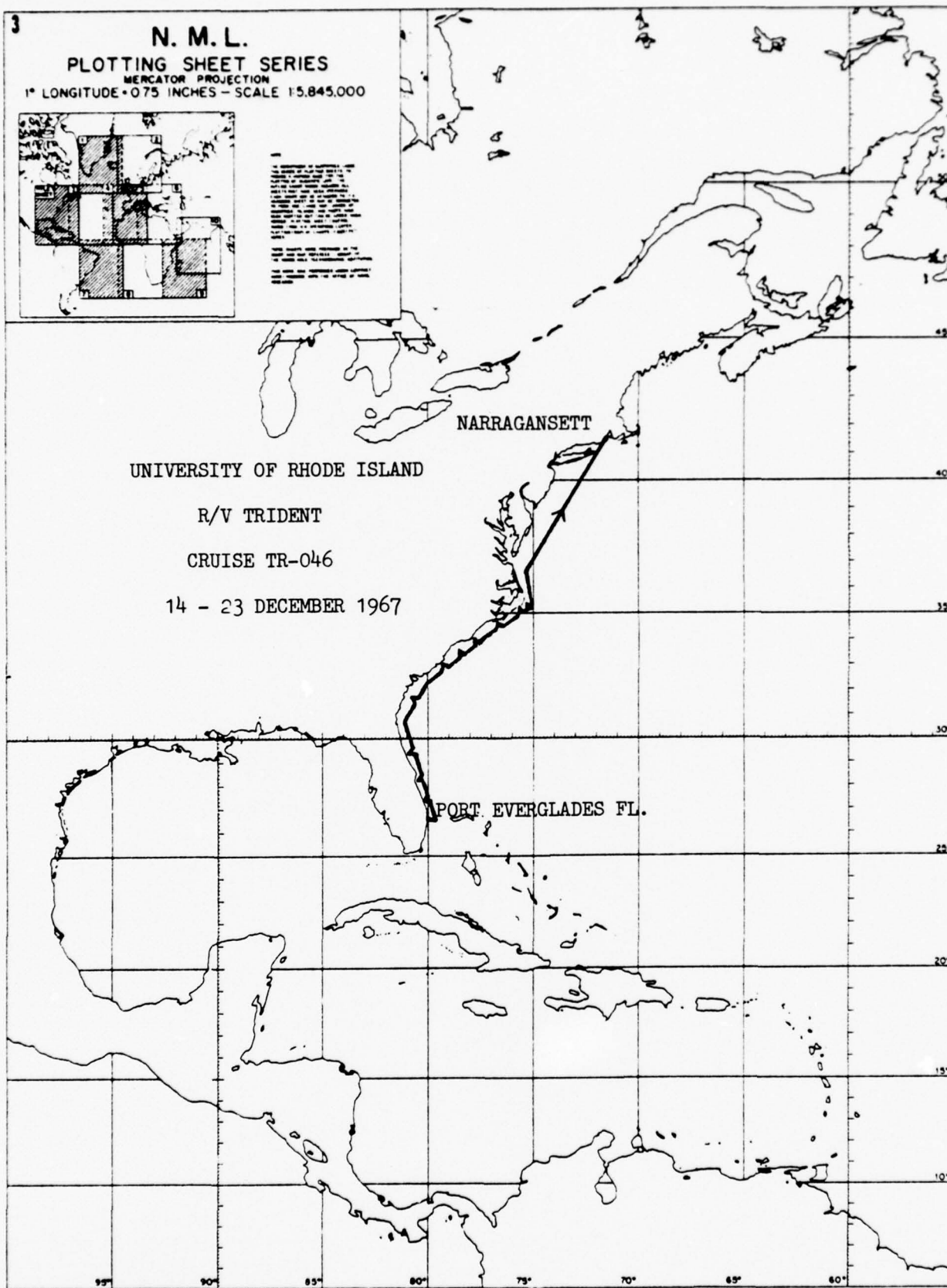
UNIVERSITY OF RHODE ISLAND

R/V TRIDENT

CRUISE TR-046

14 - 23 DECEMBER 1967

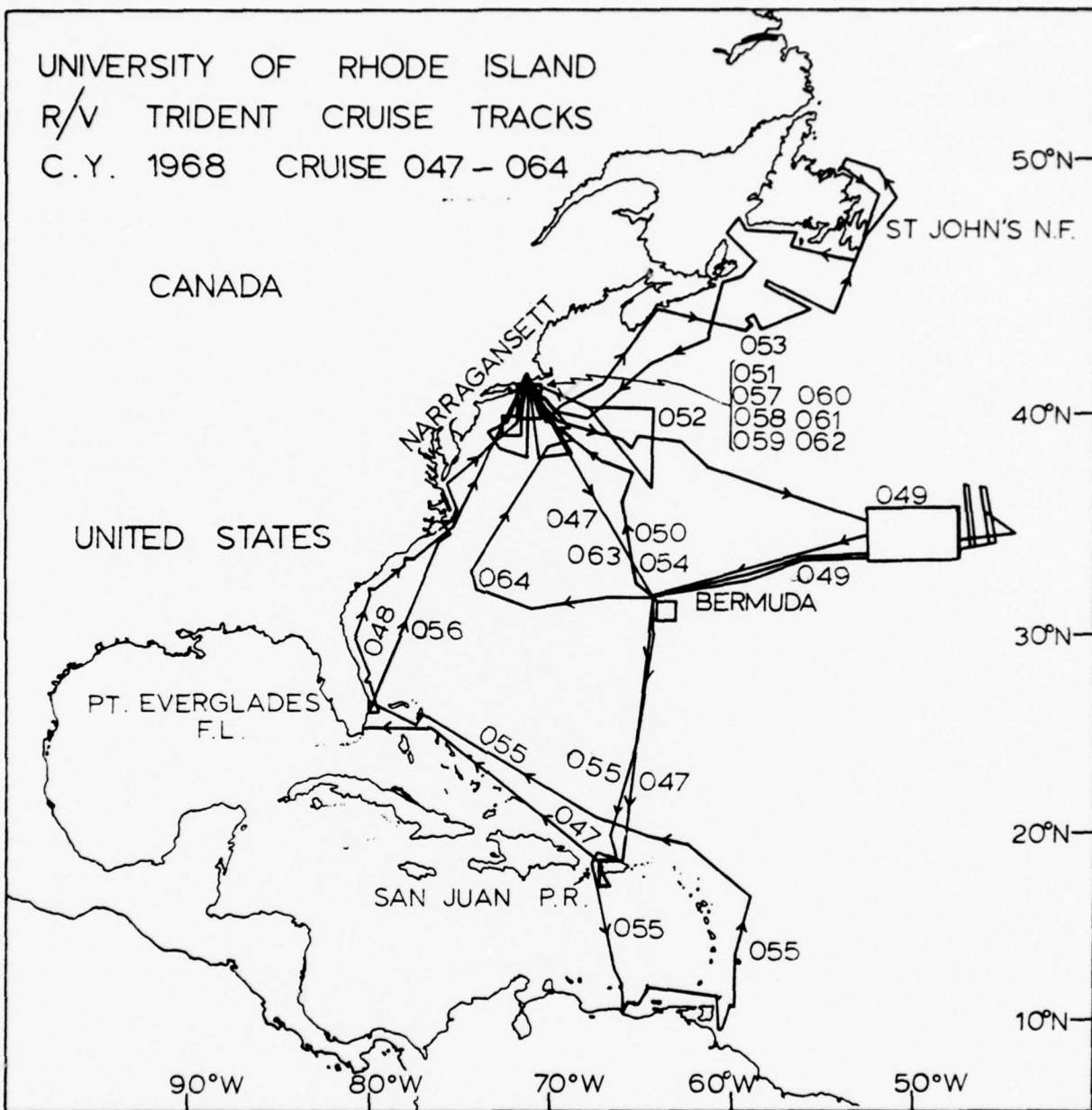
PORT EVERGLADES FL.



R/V TRIDENT Cruises - CY 1968

Cruise No.	Dates	Days at Sea	Area of Operation	Chief Scientist/ Affiliation*
047	2 Mar. - 4 Apr.	27	NW Atlantic, Caribbean	Napora
048	6-14 Apr.	9	NW Atlantic	Fish
049	22 Apr. - 10 June	48	NW Atlantic	Krause, McGregor
050	13-18 June	6	NW Atlantic	Corless
051	28 June - 7 July	10	NW Atlantic	McMaster
052	8-24 July	17	NW Atlantic	Zimmerman
053	3-23 Aug.	20	North Atlantic	Winn
054	28 Aug. - 9 Sept.	13	NW Atlantic	Napora
055	12 Sept. - 11 Oct.	29	NW Atlantic, Caribbean	Pilson
056	13-19 Oct.	7	NW Atlantic	Perkins
057	8-10 Nov.	3	NW Atlantic	Smith/OE, URI
058	11-14 Nov.	4	NW Atlantic	Knauss
059	16-21 Nov.	6	NW Atlantic	Winn
060	22 Nov.	1	Block Island Sound	Pratt
061	23-25 Nov.	3	NW Atlantic	Knauss
062	25-26 Nov.	1	Rhode Island Sound	Schenck/OE, URI
063	2-12 Dec.	10	NW Atlantic	Napora
064	14-21 Dec.	8	NW Atlantic	Kupferman

\*GS0/URI unless otherwise noted



Cruise No.: TR-047

Dates: 2 March - 4 April 1968

Area of Operation: Northwest  
Atlantic Ocean,  
Caribbean Sea

Days at sea: 27

Funding: ONR

#### Program Description

The major programs on this cruise were:

- a) to take biological samples as part of the Ocean Acre program
- b) to study the biogeochemical cycling of elements in seawater
- c) to study water for particulate and organic aggregates
- d) to perform a geological/geophysical survey through the  
Mona passage

#### Data Collected

- 1) 16 hydrographic stations were occupied
- 2) 19 XBTs were taken
- 3) seven zooplankton collection stations were made
- 4) 92 n.m. of bathymetric and magnetic profiles were run
- 5) four trawl stations were occupied

#### Participants

Dr. Theodore A. Napora	Chief Scientist	U.R.I.
Mr. Louis Garrison	Scientist	USGS
Mr. George Clipper	Scientist	Smithsonian Inst.
Mr. Robert Gibbs	Scientist	Smithsonian Inst.
Mr. Clyde Roper	Scientist	Smithsonian Inst.
Mr. David Guiliano	Scientist	USN/USL
Mr. John H. Martin	Scientist	Puerto Rico Nuclear Center
Mr. Arthur Buddington	Marine Technician	U.R.I.
Mr. Michael Keene	Graduate Student	U.R.I.
Mr. Gerard R. Miller	Graduate Student	U.R.I.
Mr. William Krueger	Student	U.R.I.



Cruise No.: TR-048

Dates: 6 - 14 April 1968

Area of Operation: Northwest  
Atlantic Ocean

Days at Sea: 9

Funding: ONR, NSF

#### Program Description

The major purposes of this cruise were

- a) to continue seasonal bioacoustic surveys
- b) to maintain a continuous whale and porpoise watch
- c) to test an electronic zooplankton sampler

#### Data Collected

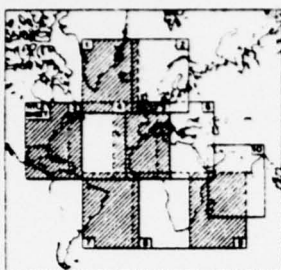
- 1) six bioacoustic stations were occupied
- 2) two electronic sampler stations were taken
- 3) continuous whale and porpoise watches were made

#### Participants

Dr. Charles J. Fish	Chief Scientist	U.R.I.
Mr. Paul J. Perkins	Oceanographic Specialist	U.R.I.
Mr. Arthur Buddington	Oceanographic Specialist	U.R.I.
Mr. David Morgan	Graduate Assistant	U.R.I.

3

N. M. L.  
PLOTING SHEET SERIES  
MERCATOR PROJECTION  
1" LONGITUDE = 0.75 INCHES - SCALE 1:5,845,000



1. Symbols for land, water, and other features.  
2. Symbols for depth soundings.  
3. Symbols for navigational aids.  
4. Symbols for other features.  
5. Symbols for other features.  
6. Symbols for other features.  
7. Symbols for other features.  
8. Symbols for other features.  
9. Symbols for other features.  
10. Symbols for other features.

NARRAGANSETT

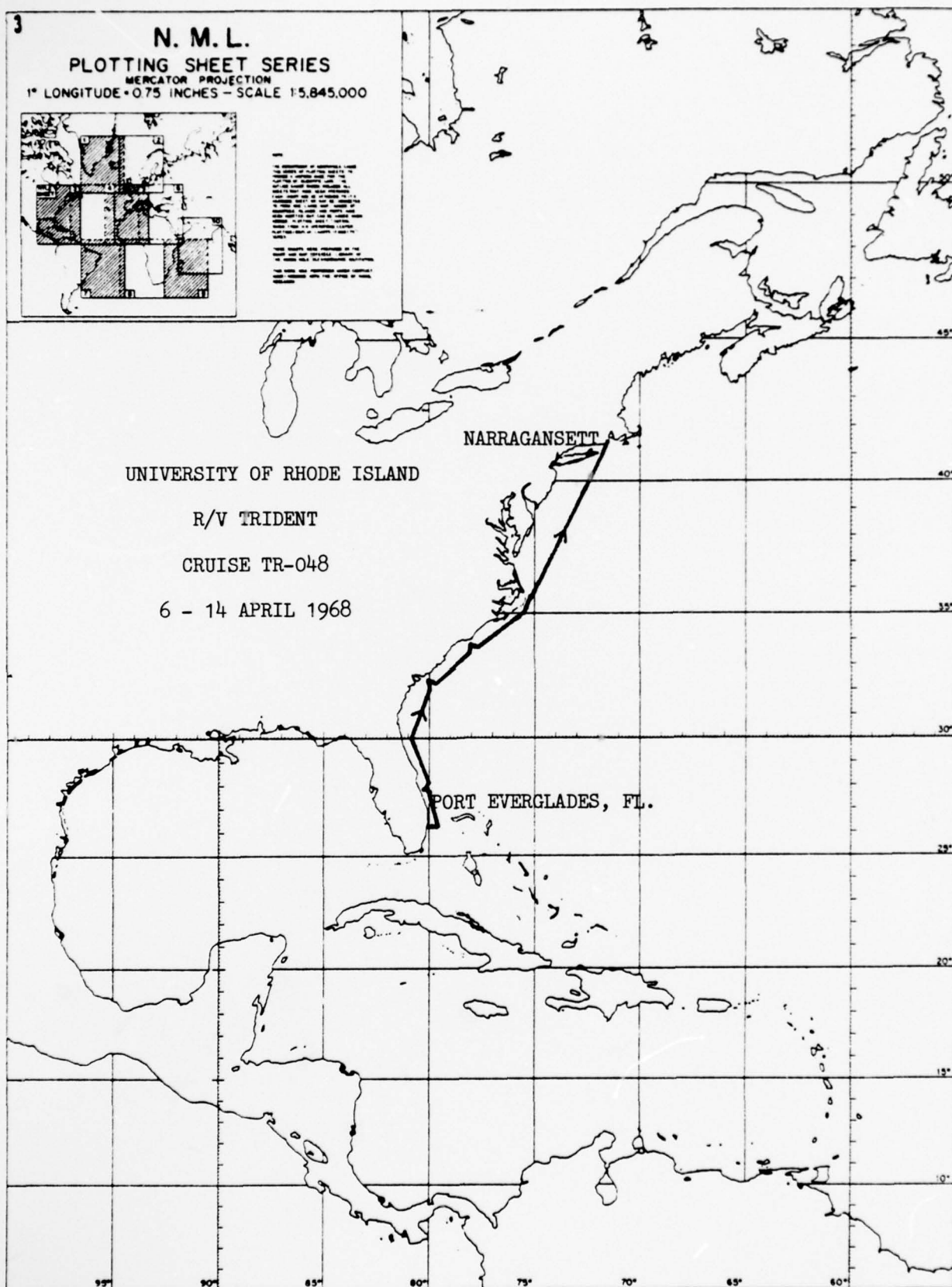
UNIVERSITY OF RHODE ISLAND

R/V TRIDENT

CRUISE TR-048

6 - 14 APRIL 1968

PORT EVERGLADES, FL.



Cruise No.: TR-049

Dates: 22 April - 10 June 1968

Area of Operation: Northwest  
Atlantic Ocean

Days at sea: 48

Funding: ONR, NSF

#### Program Description

The main purpose of this cruise was

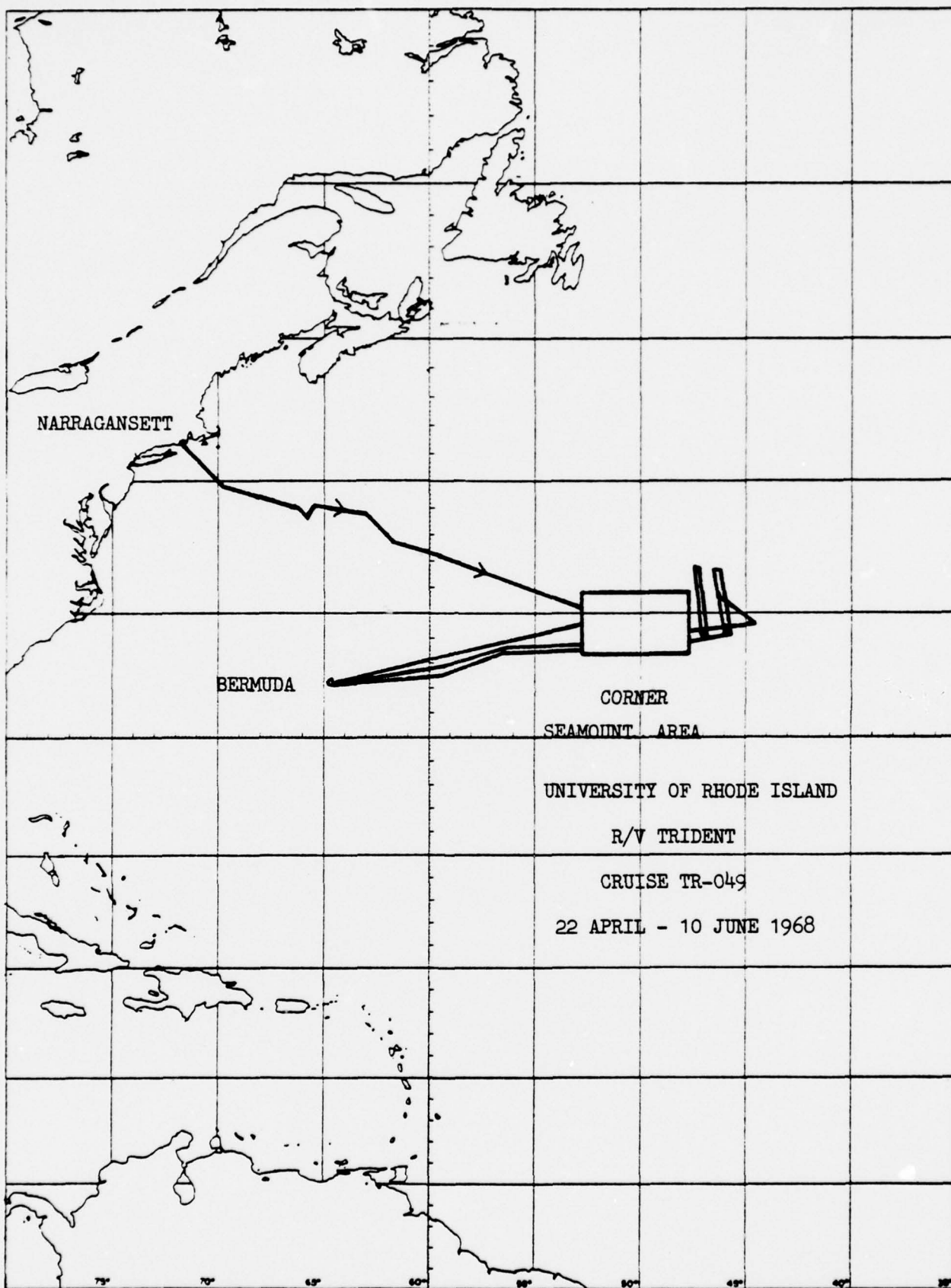
- a) to conduct geological, geophysical and geochemical studies, particularly in the Corner Seamount area

#### Data Collected

- 1) 4,500 n.m. each of bathymetric and magnetic profiles were run
- 2) 630 n.m. of seismic reflection profiles were taken
- 3) 38 hydrographic stations were taken to study suspended particulate matter
- 4) two XBTs were taken
- 5) five dredge stations were occupied
- 6) three cores were retrieved
- 7) three camera stations were occupied

#### Participants

Dr. Dale C. Krause	Co-Chief Scientist	U.R.I.
Ms. Bonnie A. McGregor	Co-Chief Scientist	U.R.I.
Mr. Peter Betzer	Graduate Student	U.R.I.
Mr. George Steele	Graduate Student	U.R.I.
Ms. Christine Trmal	Graduate Student	U.R.I.
Mr. Arthur Buddington	Oceanographic Specialist	U.R.I.
Mr. Timothy Kennard	Oceanographic Specialist	U.R.I.



Cruise No.: TR-050

Dates: 13-18 June 1968

Area of Operation: Northwest  
Atlantic Ocean

Days at sea: 6

Funding: ONR, NSF

#### Program Description

The main purposes of this cruise were

- a) to study the suspended particulates in the water column
- b) to take cores and study them for trace metals and silica

#### Data Collected

- 1) Eight hydrographic stations were occupied to study suspended particulate matter
- 2) 11 cores were taken

#### Participants

Dr. J. Corless	Chief Scientist	U.R.I.
Dr. V. Rose	Professor	U.R.I.
Dr. S. Kupferman	Research Associate	U.R.I.
Mr. A. Buddington	Oceanographic Specialist	U.R.I.
Mr. T. Kennard	Oceanographic Specialist	U.R.I.
Mr. P. Betzer	Graduate Student	U.R.I.
Mr. D. Bressan	Graduate Student	U.R.I.
Mr. K. Fanning	Graduate Student	U.R.I.
Mr. B. Keck	Graduate Student	U.R.I.
Mr. T. O'Connor	Graduate Student	U.R.I.
Mr. D. Roy	Graduate Student	U.R.I.
Mr. W. Moore	Student	SUNY, Stoneybrook

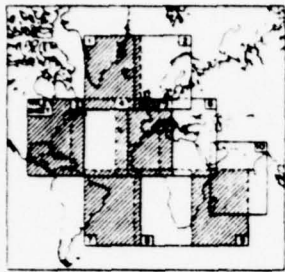
3

N. M. L.

PLOTING SHEET SERIES

MERCATOR PROJECTION

1" LONGITUDE = 0.75 INCHES - SCALE 1:5,845,000



1. 1:5,845,000  
2. 1:5,845,000  
3. 1:5,845,000  
4. 1:5,845,000  
5. 1:5,845,000  
6. 1:5,845,000  
7. 1:5,845,000  
8. 1:5,845,000  
9. 1:5,845,000  
10. 1:5,845,000  
11. 1:5,845,000  
12. 1:5,845,000  
13. 1:5,845,000  
14. 1:5,845,000  
15. 1:5,845,000  
16. 1:5,845,000  
17. 1:5,845,000  
18. 1:5,845,000  
19. 1:5,845,000  
20. 1:5,845,000  
21. 1:5,845,000  
22. 1:5,845,000  
23. 1:5,845,000  
24. 1:5,845,000  
25. 1:5,845,000  
26. 1:5,845,000  
27. 1:5,845,000  
28. 1:5,845,000  
29. 1:5,845,000  
30. 1:5,845,000  
31. 1:5,845,000  
32. 1:5,845,000  
33. 1:5,845,000  
34. 1:5,845,000  
35. 1:5,845,000  
36. 1:5,845,000  
37. 1:5,845,000  
38. 1:5,845,000  
39. 1:5,845,000  
40. 1:5,845,000  
41. 1:5,845,000  
42. 1:5,845,000  
43. 1:5,845,000  
44. 1:5,845,000  
45. 1:5,845,000  
46. 1:5,845,000  
47. 1:5,845,000  
48. 1:5,845,000  
49. 1:5,845,000  
50. 1:5,845,000  
51. 1:5,845,000  
52. 1:5,845,000  
53. 1:5,845,000  
54. 1:5,845,000  
55. 1:5,845,000  
56. 1:5,845,000  
57. 1:5,845,000  
58. 1:5,845,000  
59. 1:5,845,000  
60. 1:5,845,000  
61. 1:5,845,000  
62. 1:5,845,000  
63. 1:5,845,000  
64. 1:5,845,000  
65. 1:5,845,000  
66. 1:5,845,000  
67. 1:5,845,000  
68. 1:5,845,000  
69. 1:5,845,000  
70. 1:5,845,000  
71. 1:5,845,000  
72. 1:5,845,000  
73. 1:5,845,000  
74. 1:5,845,000  
75. 1:5,845,000  
76. 1:5,845,000  
77. 1:5,845,000  
78. 1:5,845,000  
79. 1:5,845,000  
80. 1:5,845,000  
81. 1:5,845,000  
82. 1:5,845,000  
83. 1:5,845,000  
84. 1:5,845,000  
85. 1:5,845,000  
86. 1:5,845,000  
87. 1:5,845,000  
88. 1:5,845,000  
89. 1:5,845,000  
90. 1:5,845,000  
91. 1:5,845,000  
92. 1:5,845,000  
93. 1:5,845,000  
94. 1:5,845,000  
95. 1:5,845,000  
96. 1:5,845,000  
97. 1:5,845,000  
98. 1:5,845,000  
99. 1:5,845,000  
100. 1:5,845,000

NARRAGANSETT

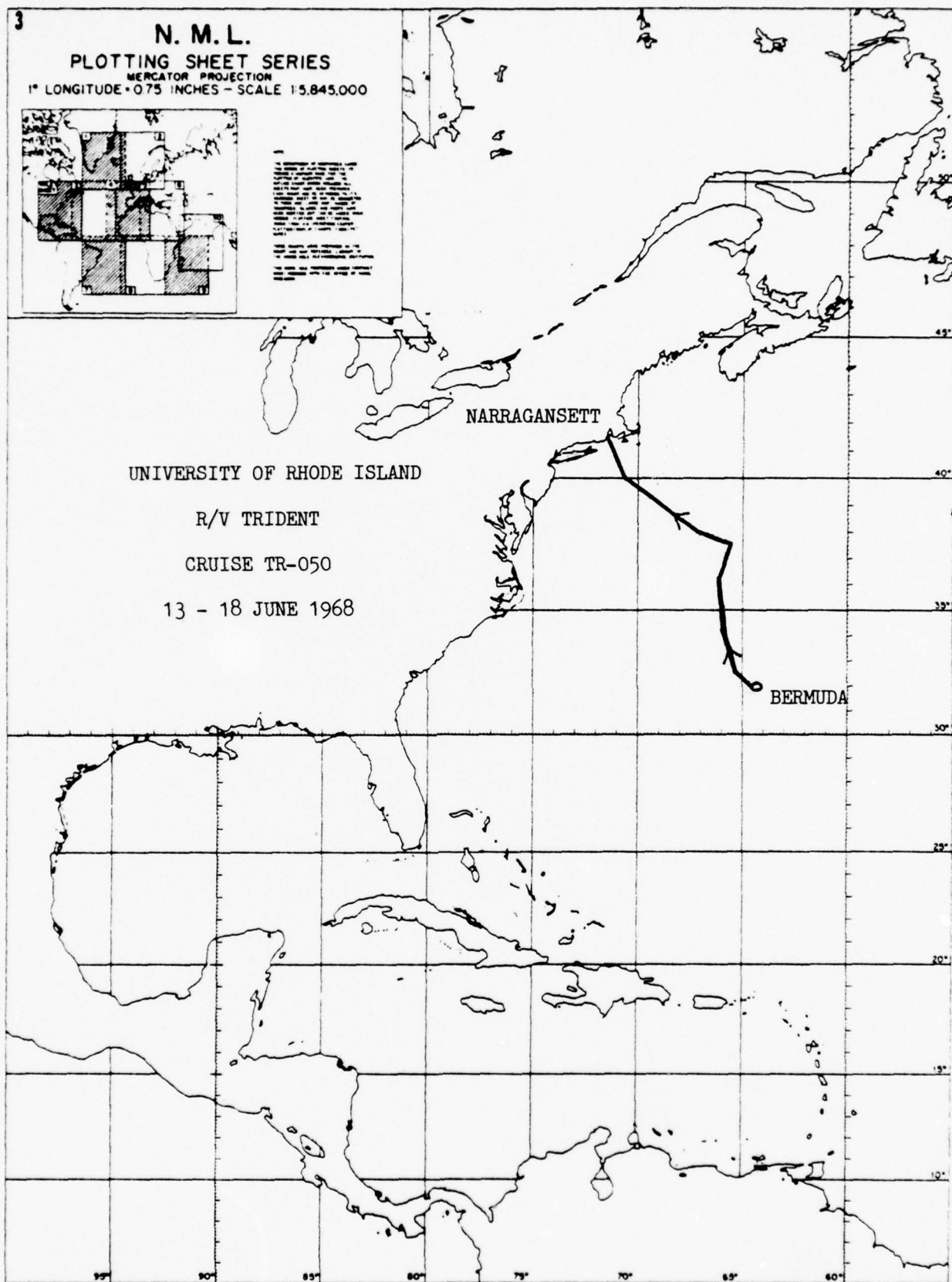
UNIVERSITY OF RHODE ISLAND

R/V TRIDENT

CRUISE TR-050

13 - 18 JUNE 1968

BERMUDA



Cruise No.: TR-051

Dates: 28 June - 7 July 1968

Area of Operation: Northwest  
Atlantic Ocean

Days at sea: 10

Funding: ONR, NSF

#### Program Description

The main purposes of this cruise were

- a) to perform geological and geophysical studies on the shelf of New England
- b) to perform seismic profiling equipment studies

#### Data Collected

- 1) 782 n.m. of seismic reflection profiles were run
- 2) four cores were taken
- 3) seismic airguns and hydrophones were tested

#### Participants

Dr. R. McMaster	Chief Scientist	U.R.I.
Dr. F. Middleton	Professor	U.R.I.
Mr. A. Ashraf	Research Assistant	U.R.I.
Mr. A. Buddington	Oceanographic Specialist	U.R.I.
Mr. T. Kennard	Oceanographic Specialist	U.R.I.
Mr. R. Sexton	Oceanographic Specialist	U.R.I.
Mr. A. Barrett	Graduate Student	U.R.I.
Mr. M. Barros	Graduate Student	U.R.I.
Mr. W. Dillon	Graduate Student	U.R.I.
Mr. G. Eller	Graduate Student	U.R.I.
Mr. H. Ryder	Scientist	Sanders Associates Inc.
Mr. L. Smith	Graduate Student	U.R.I.

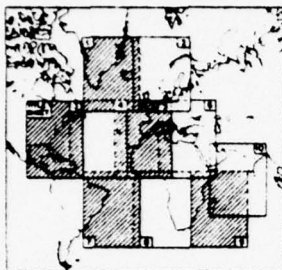
3

N. M. L.

## PLOTting SHEET SERIES

MERCATOR PROJECTION

1" LONGITUDE = 0.75 INCHES - SCALE 1:5,845,000



NOTE: This map is a reproduction of the original map and is not to be used for navigation. It is intended for plotting and recording data only. The map is based on the Mercator projection and is not to be used for navigation. The map is based on the Mercator projection and is not to be used for navigation. The map is based on the Mercator projection and is not to be used for navigation.

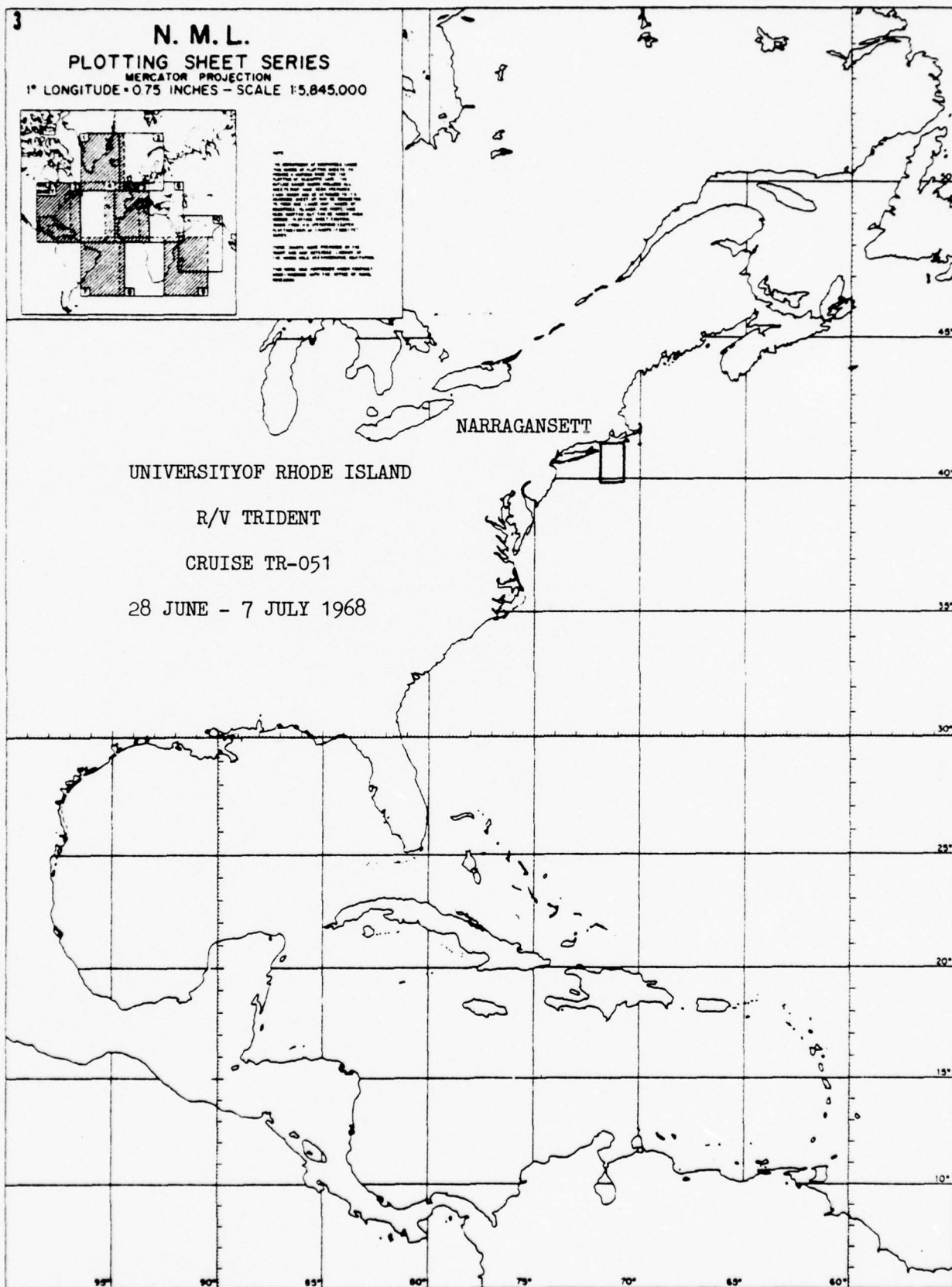
NARRAGANSETT

UNIVERSITY OF RHODE ISLAND

R/V TRIDENT

CRUISE TR-051

28 JUNE - 7 JULY 1968



Cruise No.: TR-052

Dates: 8-24 July 1968

Area of Operation: Northwest  
Atlantic Ocean

Days at sea: 17

Funding: ONR

#### Program Description

The main purpose of this cruise was

- a) to use geological and geophysical studies to define the processes and environments of sedimentation on the continental rise off the New England coast

#### Data Collected

- 1) 450 n.m. of seismic reflection profiles were run
- 2) 20 cores were recovered
- 3) 12 camera stations were occupied
- 4) 16 hydrographic stations were taken
- 5) three current meter arrays were deployed and recovered
- 6) two XBTs were taken

#### Participants

Mr. H. Zimmerman	Chief Scientist	U.R.I.
Mr. P. Bedard	Electronic Engineer	U.R.I.
Mr. A. Buddington	Oceanographic Specialist	U.R.I.
Mr. T. Kennard	Oceanographic Specialist	U.R.I.
Mr. J. Sammons	Research Technician	U.R.I.
Mr. M. Barros	Graduate Student	U.R.I.
Mr. P. Pinet	Graduate Student	U.R.I.
Mr. P. deNyse	Scientist	SUNY, Stonybrook
Mr. S. Sellinger	Scientist	Brooklyn College
Mr. W. Smit	Scientist	Brooklyn College
Mr. A. Stegmuller	Scientist	Brooklyn College
Mr. P. Wasserman	Scientist	Brooklyn College
Mr. R. Young	Scientist	Brooklyn College

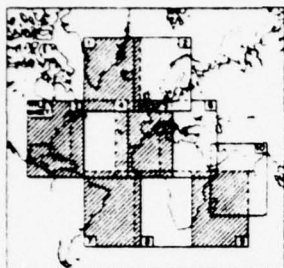
3

N. M. L.

## PLOTting SHEET SERIES

MERCATOR PROJECTION

1" LONGITUDE = 0.75 INCHES - SCALE 1:5,845,000



1. Symbols for land, water, and ice are shown in the legend. 2. Symbols for ships, aircraft, and other vessels are shown in the legend. 3. Symbols for weather, sea, and other conditions are shown in the legend. 4. Symbols for time, date, and other information are shown in the legend. 5. Symbols for other information are shown in the legend.

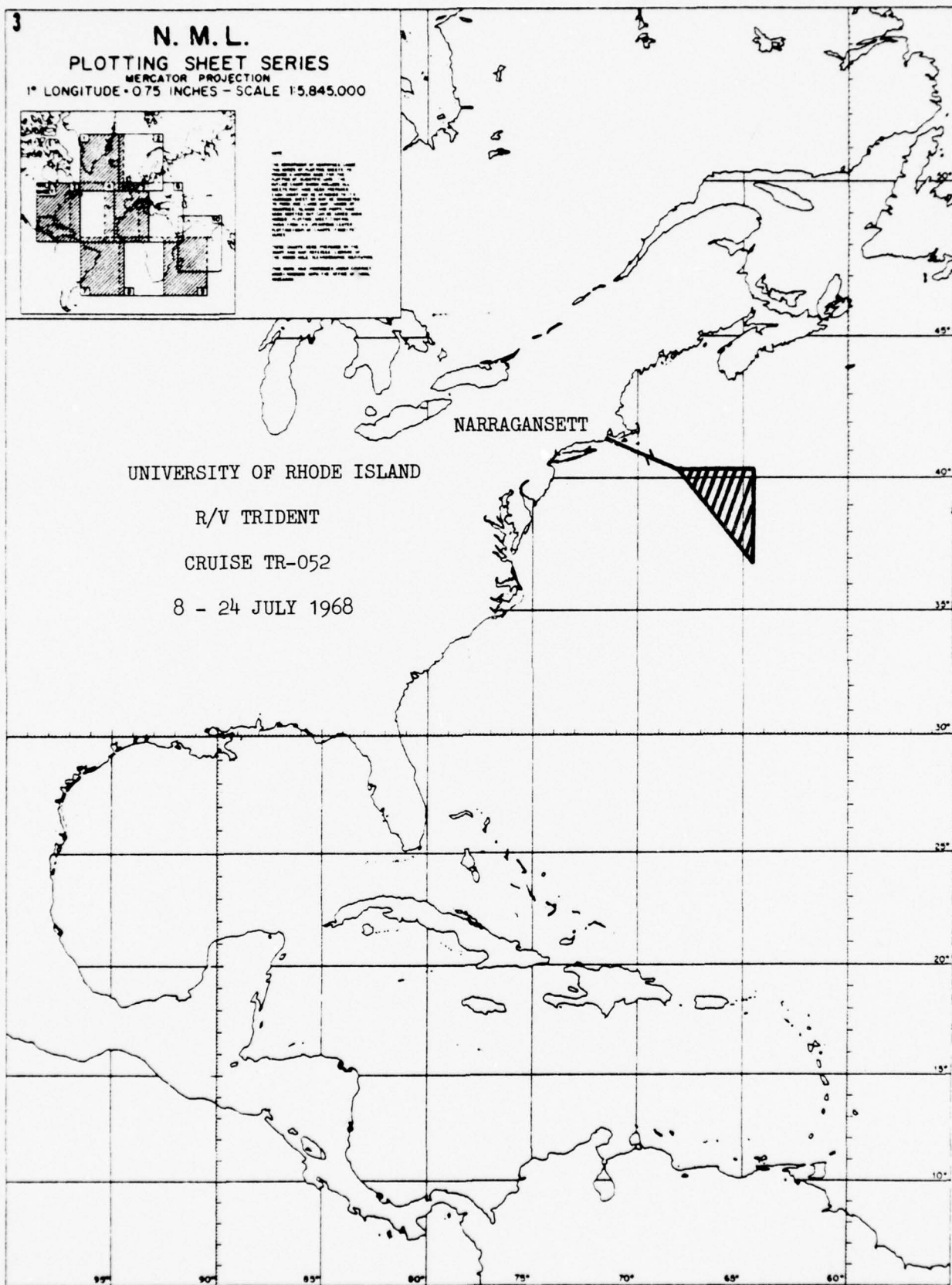
NARRAGANSETT

UNIVERSITY OF RHODE ISLAND

R/V TRIDENT

CRUISE TR-052

8 - 24 JULY 1968



Cruise No.: TR-053

Dates: 3-23 August 1968

Area of Operation: North and  
Northwest  
Atlantic Ocean

Days at sea: 20

Funding: ONR

#### Program Description

The main purposes of this cruise were

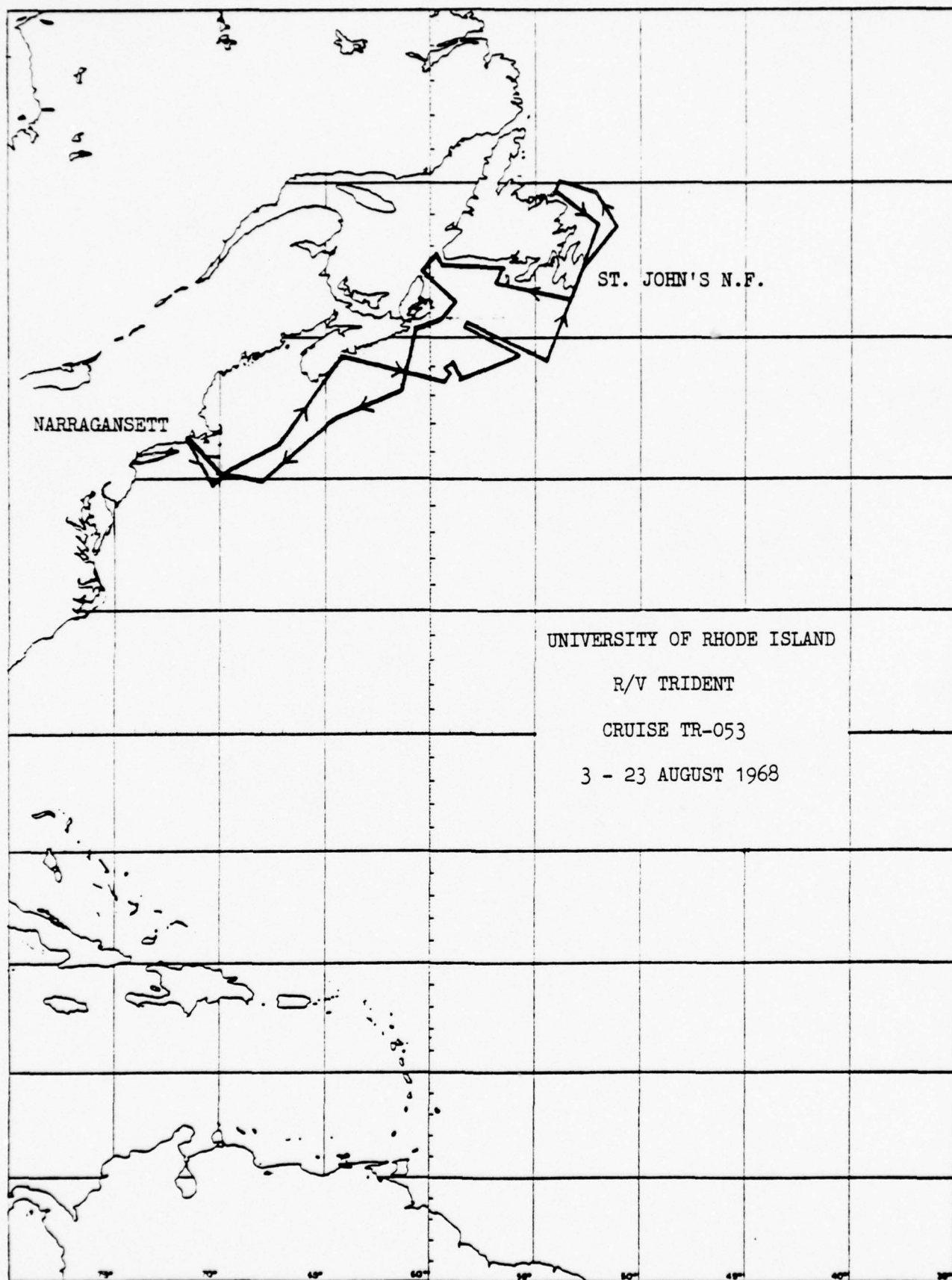
- a) to record underwater sounds of whales and dolphins
- b) to follow a pod of whales for a two-day period using a helium balloon, light and radar
- c) to collect eels and squid
- d) to deploy two current meters

#### Data Collected

- 1) 23 whale/dolphin listen/record stations were occupied
- 2) pods of whales were followed for various lengths of time
- 3) current meters were deployed

#### Participants

Dr. Howard E. Winn	Chief Scientist	U.R.I.
Mr. Paul J. Perkins	Oceanographic Specialist	U.R.I.
Mr. Philip Bedard	Electronics Engineer	U.R.I.
Mr. David E. Sergeant	Scientist	Fisheries Research Board of Canada
Mr. J. Lawrence Dunn	Scientist	NAVOCEANO
Mr. Richard Love	Scientist	NAVOCEANO
Mr. Frank R. Taylor	Scientist	NAVOCEANO
Mr. Raymond Kenney	Graduate Student	U.R.I.
Mr. David Morgan	Graduate Student	U.R.I.
Ms. Myra Morgan	Graduate Student	U.R.I.
Mr. Wilfred Savard	Graduate Student	U.R.I.
Ms. Lynn Haines	Student	Univ. of Rochester
Mr. Robin Ross	Student	Univ. of Rochester
Mr. Eric Winn	Student	U.R.I.



Cruise No.: TR-054

Dates: 28 August - 9 September 1968

Area of Operation: Northwest  
Atlantic Ocean

Days at sea: 13

Funding: ONR, NSF

#### Program Description

The main purposes of this cruise were:

- a) to perform biological/chemical sampling in the Ocean Acre area
- b) to take bathymetric data for the Naval Underwater Sound Lab,  
New London

#### Data Collected

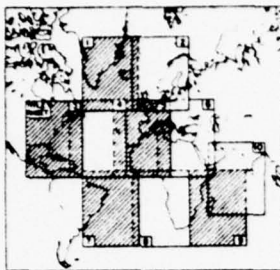
- 1) 30 trawls were made
- 2) 2 hydrographic stations were occupied
- 3) 10 XBTs were taken
- 4) bathymetry profiles were run

#### Participants

Dr. T. A. Napora	Chief Scientist	U.R.I.
Mr. T. Kennard	Technician	U.R.I.
Mr. H. A. Donaldson	Graduate Student	U.R.I.
Mr. M. J. Keene	Graduate Student	U.R.I.
Mr. J. Krout	Graduate Student	U.R.I.
Mr. W. H. Krueger	Graduate Student	U.R.I.
Mr. G. B. Farguhar	Scientist	NAVOCEANO
Mr. B. Shearer	Scientist	NAVOCEANO
Mr. G. L. Clipper	Scientist	Bureau of Commercial Fisheries
Mr. A. L. Brooks	Scientist	NUSL
Mr. R. H. Gibbs	Scientist	Smithsonian Institution
Mr. C. F. Roper	Scientist	Smithsonian Institution

3

N. M. L.  
PLOTting SHEET SERIES  
MERCATOR PROJECTION  
1" LONGITUDE = 0.75 INCHES - SCALE 1:5,845,000



NOTE: This map is a reproduction of the original map. It is not to be used for navigation. It is for reference only. The original map is the only authoritative source for the information contained herein.

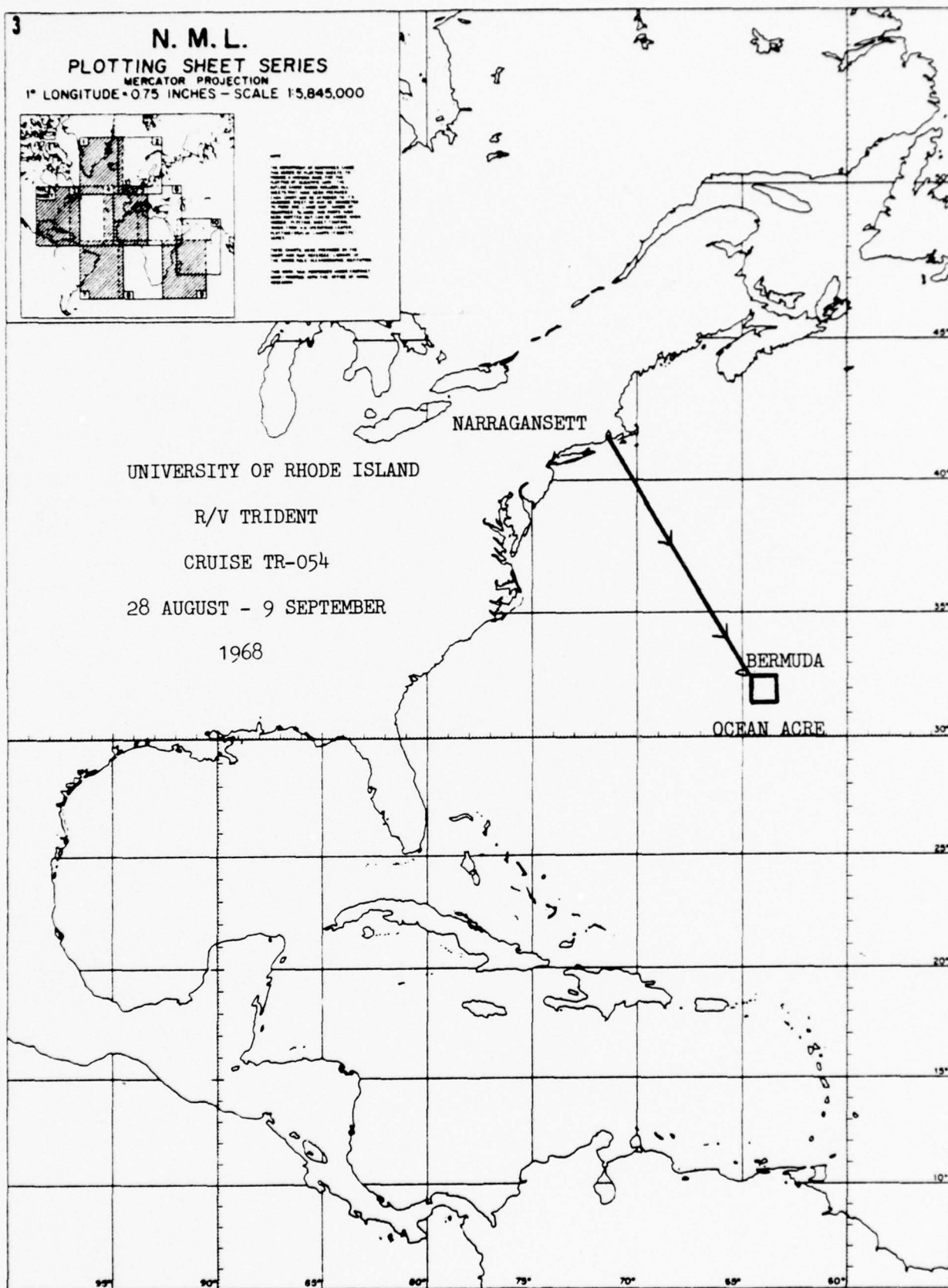
UNIVERSITY OF RHODE ISLAND

R/V TRIDENT

CRUISE TR-054

28 AUGUST - 9 SEPTEMBER

1968



Cruise No.: TR-055

Dates: 12 September - 11 October 1968

Area of Operation: Northwest  
Atlantic Ocean,  
Caribbean Sea

Days at sea: 29

Funding: ONR

#### Program Description

The main purposes of this cruise were:

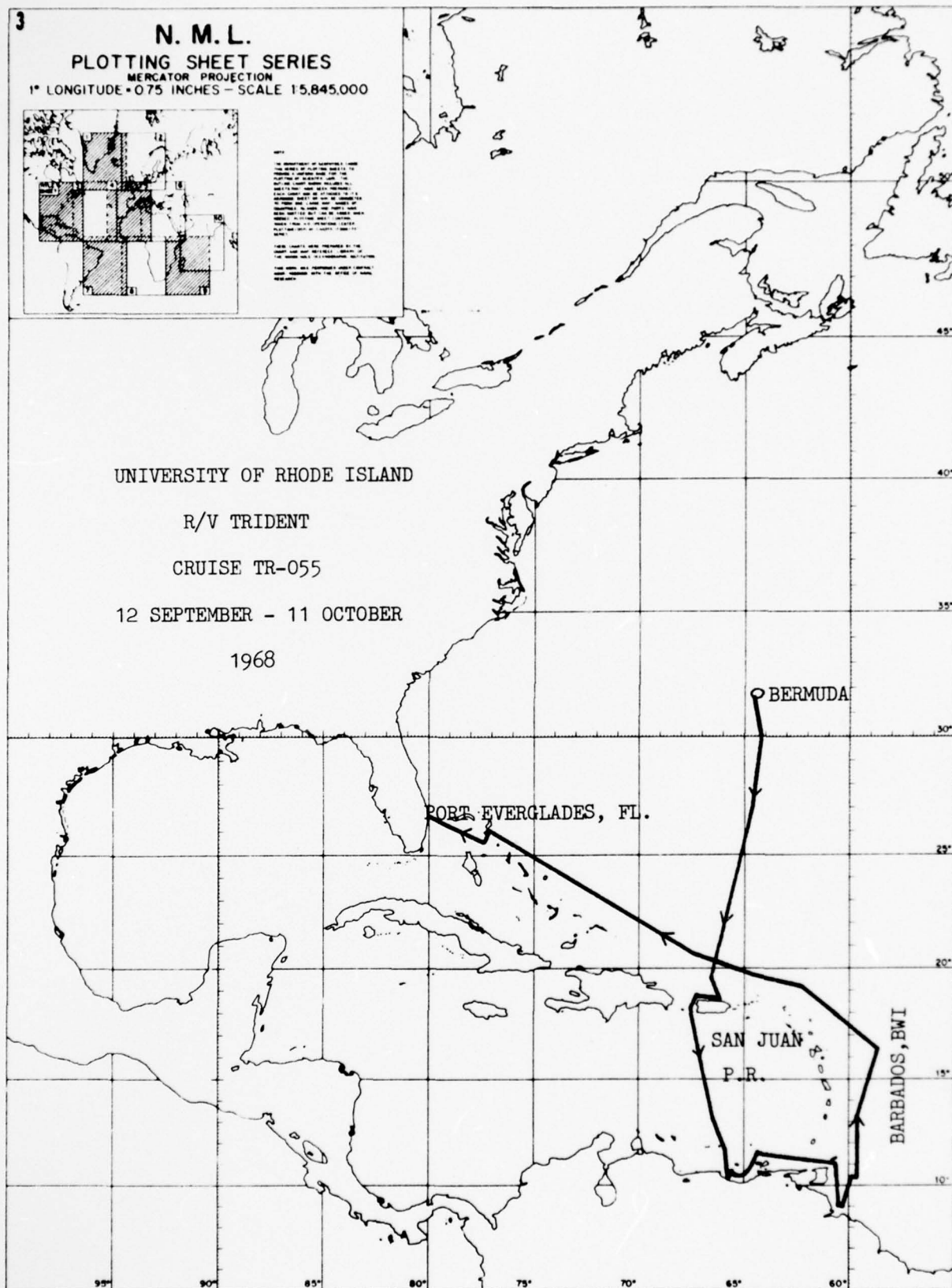
- a) to investigate the seawater chemistry in the Cariaco Trench
- b) to study core chemistry
- c) to collect zooplankton and phytoplankton
- d) to investigate seawater chemistry off the Orinoco River

#### Data Collected

- 1) 44 hydrographic stations were occupied
- 2) 17 cores were recovered
- 3) six grabs were taken
- 4) two camera stations were occupied
- 5) 24 XBTs were taken

#### Participants

Dr. Michael E. Q. Pilson	Chief Scientist	U.R.I.
Dr. George T. Felbeck	Assoc. Professor	U.R.I.
Mr. Timothy Kennard	Marine Technician	U.R.I.
Mr. Peter Betzer	Graduate Student	U.R.I.
Mr. Kent Fanning	Graduate Student	U.R.I.
Mr. David Johnson	Graduate Student	U.R.I.
Mr. Jason Krout	Graduate Student	U.R.I.
Mr. Gerard Miller	Graduate Student	U.R.I.
Mr. Gabriel Vargo	Graduate Student	U.R.I.
Ms. Sandy Vargo	Graduate Student	U.R.I.
Mr. Kenneth Wolgemuth	Graduate Student	L.G.O.



Cruise No.: TR-056

Dates: 13 - 19 October 1968

Area of Operation: Northwest  
Atlantic Ocean

Days at sea: 7

Funding: ONR

#### Program Description

The main purposes of this cruise were:

- a) to study and record seasonal variations of biological sound levels
- b) to maintain whale and porpoise watches
- c) to fish while on station and coordinate with sound data
- d) to catch migrating American eels

#### Data Collected

- 1) four bioacoustic/fishing stations were occupied
- 2) whale and porpoise watches were maintained

#### Participants

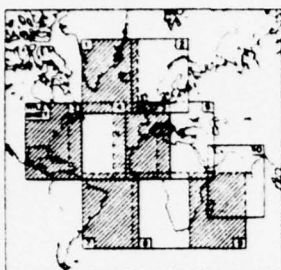
Mr. Paul J. Perkins  
Mr. Timothy Kennard

Chief Scientist  
Oceanographic Specialist

U.R.I.  
U.R.I.

3

N. M. L.  
PLOTING SHEET SERIES  
MERCATOR PROJECTION  
1" LONGITUDE = 0.75 INCHES - SCALE 1:5,845,000



1. Symbols for land, water, and ice are as shown on the Nautical Chart of the United States.  
2. Symbols for depth, soundings, and other features are as shown on the Nautical Chart of the United States.  
3. Symbols for navigation, including lights, buoys, and other aids to navigation, are as shown on the Nautical Chart of the United States.  
4. Symbols for other features, including rocks, shoals, and other hazards, are as shown on the Nautical Chart of the United States.

UNIVERSITY OF RHODE ISLAND

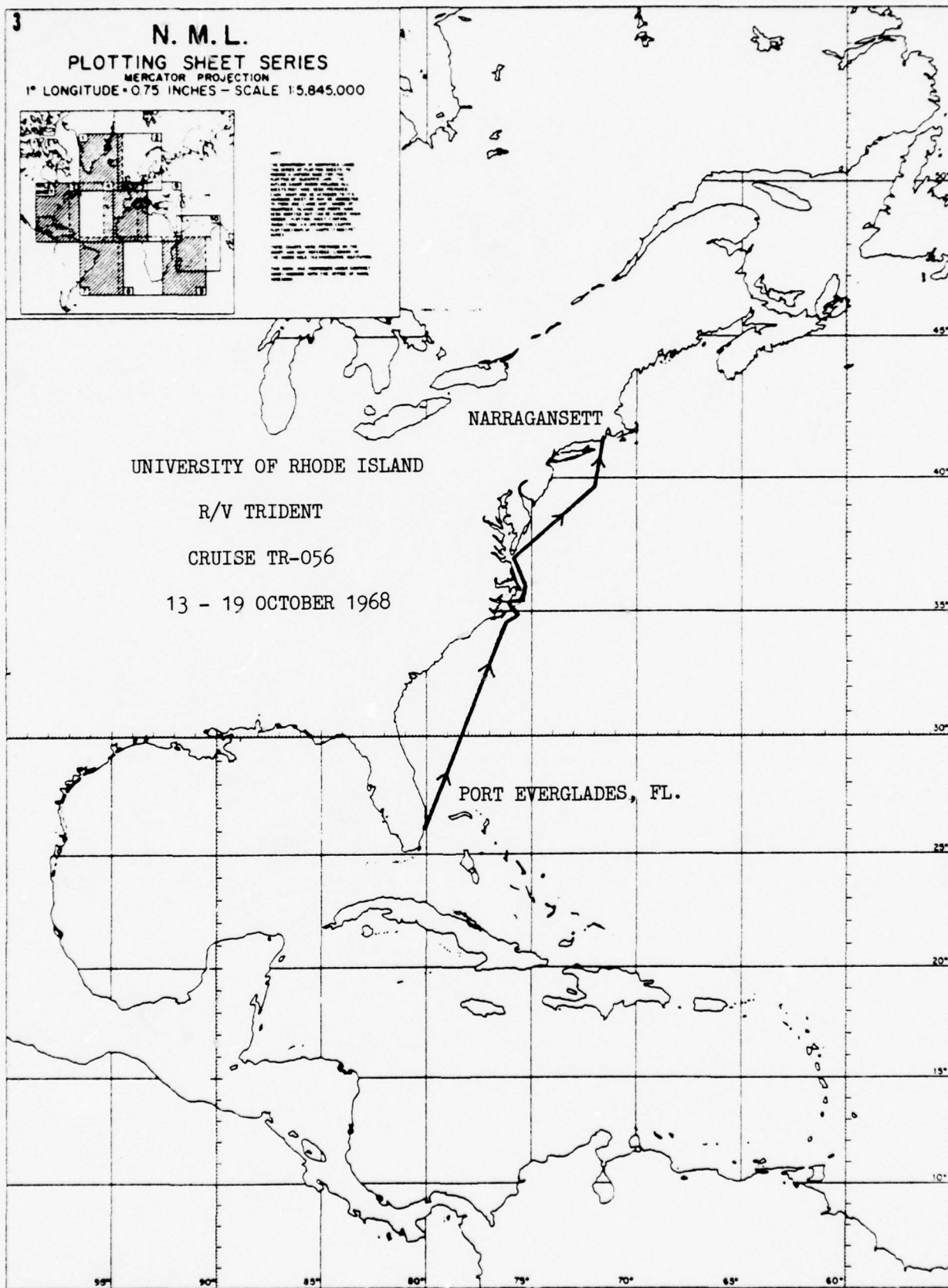
R/V TRIDENT

CRUISE TR-056

13 - 19 OCTOBER 1968

NARRAGANSETT

PORT EVERGLADES, FL.



Cruise No.: TR-057

Dates: 8 - 10 November 1968

Area of Operation: Northwest  
Atlantic Ocean

Days at sea: 3

Funding: ONR

#### Program Description

The main purpose of this cruise was

- a) to test the hydrodynamic performance of a towed instrument platform

#### Data Collected

- 1) equipment tests were carried out

#### Participants

Mr. Russell Smith	Chief Scientist	U.R.I.
Mr. Rodger Greenhall	Oceanographic Specialist	U.R.I.
Mr. Timothy Kennard	Oceanographic Specialist	U.R.I.
Mr. Hagop Arakelian	Graduate Student	U.R.I.
Mr. Robert Watson	Graduate Student	U.R.I.

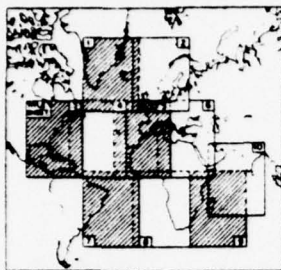
3

N. M. L.

## PLOTting SHEET SERIES

MERCATOR PROJECTION

1" LONGITUDE = 0.75 INCHES - SCALE 1:5,845,000



1. All data plotted on this sheet must be plotted on the original sheet and on this sheet.  
2. All data plotted on this sheet must be plotted on the original sheet and on this sheet.  
3. All data plotted on this sheet must be plotted on the original sheet and on this sheet.  
4. All data plotted on this sheet must be plotted on the original sheet and on this sheet.  
5. All data plotted on this sheet must be plotted on the original sheet and on this sheet.  
6. All data plotted on this sheet must be plotted on the original sheet and on this sheet.  
7. All data plotted on this sheet must be plotted on the original sheet and on this sheet.  
8. All data plotted on this sheet must be plotted on the original sheet and on this sheet.  
9. All data plotted on this sheet must be plotted on the original sheet and on this sheet.  
10. All data plotted on this sheet must be plotted on the original sheet and on this sheet.

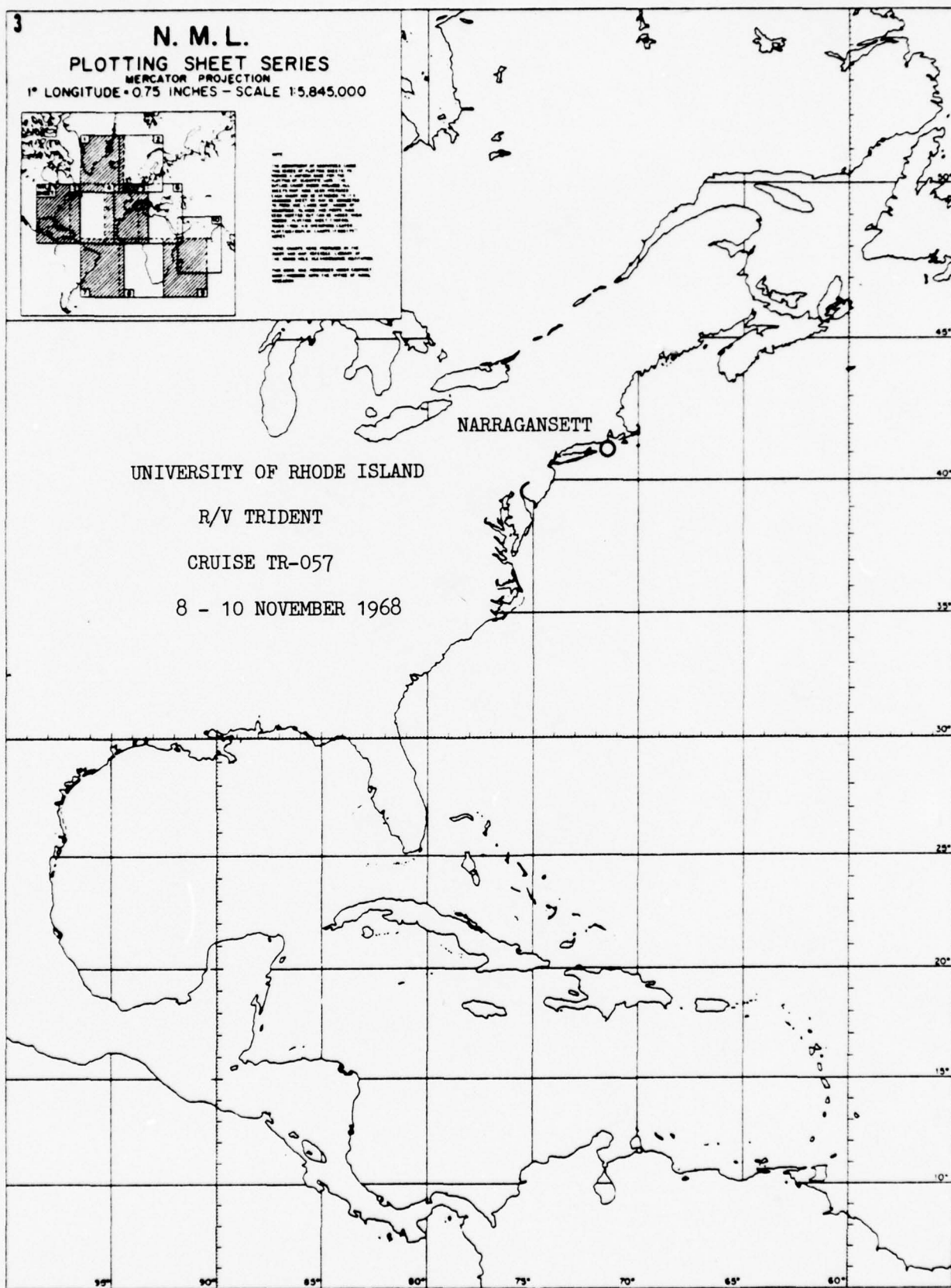
NARRAGANSETT

UNIVERSITY OF RHODE ISLAND

R/V TRIDENT

CRUISE TR-057

8 - 10 NOVEMBER 1968



Cruise No.: TR-058

Dates: 11 - 14 November 1968

Area of Operation: Northwest  
Atlantic Ocean

Days at sea: 4

Funding: ONR, NSF

#### Program Description

The main purposes of this cruise were

- a) to define bottom circulation on the continental slope near the Hydrographer Canyon
- b) to measure variation in fallout cesium
- c) to obtain a vertical profile of reactive arsenate

#### Data Collected

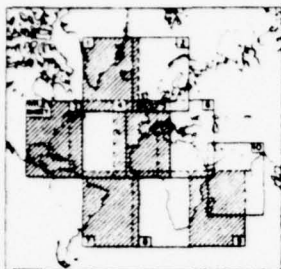
- 1) two surface samples of cesium were collected
- 2) due to very high winds and seas, no other cruise objectives were accomplished

#### Participants

Dr. J. A. Knauss	Chief Scientist	U.R.I.
Dr. W. Sturges	Assistant Professor	U.R.I.
Mr. P. P. Bedard	Electronics Engineer	U.R.I.
Mr. R. K. Sexton	Sr. Marine Technician	U.R.I.
Mr. J. I. Sammons	Electronics Technician	U.R.I.
Mr. R. K. Greenall	Marine Technician	U.R.I.
Mr. S. Kupferman	Research Associate	U.R.I.
Mr. D. Johnson	Graduate Student	U.R.I.
Mr. L. Miller	Student	Antioch College

3

N. M. L.  
PLOTING SHEET SERIES  
MERCATOR PROJECTION  
1" LONGITUDE = 0.75 INCHES - SCALE 1:5,845,000



1. Symbols for land, water, and other features.  
2. Symbols for depth, soundings, and other features.  
3. Symbols for navigation, and other features.  
4. Symbols for weather, and other features.  
5. Symbols for time, and other features.  
6. Symbols for position, and other features.  
7. Symbols for direction, and other features.  
8. Symbols for distance, and other features.  
9. Symbols for speed, and other features.  
10. Symbols for altitude, and other features.

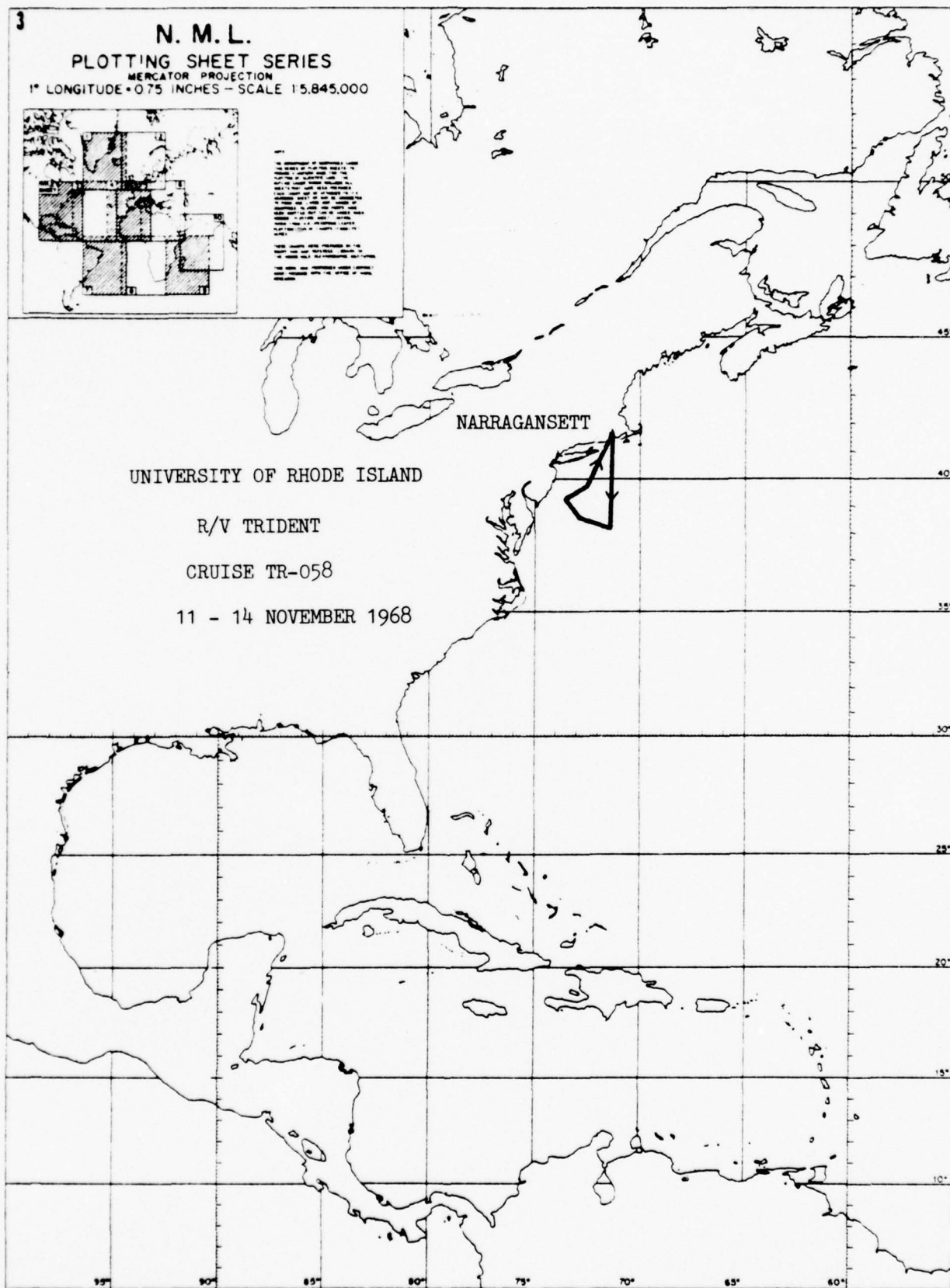
NARRAGANSETT

UNIVERSITY OF RHODE ISLAND

R/V TRIDENT

CRUISE TR-058

11 - 14 NOVEMBER 1968



Cruise No.: TR-059

Dates: 16 - 21 November 1968

Area of Operation: Northwest  
Atlantic Ocean

Days at sea: 6

Funding: ONR

#### Program Description

The main purposes of this cruise were

- a) to perform several transmit/record acoustic stations for whales and dolphins in the Hudson Canyon area
- b) to maintain underway watches for whales and dolphins
- c) to catch American eels

#### Data Collected

- 1) One playback/record station was made
- 2) many whales and porpoise were sighted
- 3) eels were seen

#### Participants

Dr. Howard E. Winn	Chief Scientist	U.R.I.
Mr. Paul J. Perkins	Oceanographic Specialist	U.R.I.
Mr. Pierce Fenhagen	Oceanographic Specialist	U.R.I.
Mr. James Fish	Graduate Student	U.R.I.
Mr. George Fulk	Graduate Student	U.R.I.
Mr. John C. Mallett	Graduate Student	U.R.I.
Mr. Dave Morgan	Graduate Student	U.R.I.
Mr. George Offutt	Graduate Student	U.R.I.
Mr. William Richkus	Graduate Student	U.R.I.
Mr. Gregory Winn	Student	U.R.I.

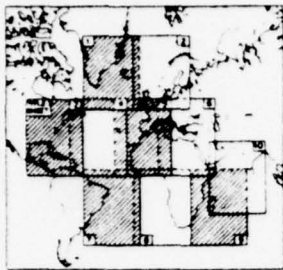
3

N. M. L.

## PLOTting SHEET SERIES

MERCATOR PROJECTION

1" LONGITUDE = 0.75 INCHES - SCALE 1:5,845,000



NOTE: This sheet is part of a series of 12 sheets covering the North Atlantic Ocean. The sheets are numbered 1 through 12, and are arranged in a grid. The main map is sheet 3, and is located in the center of the grid. The other sheets are located around it, and cover the entire North Atlantic Ocean.

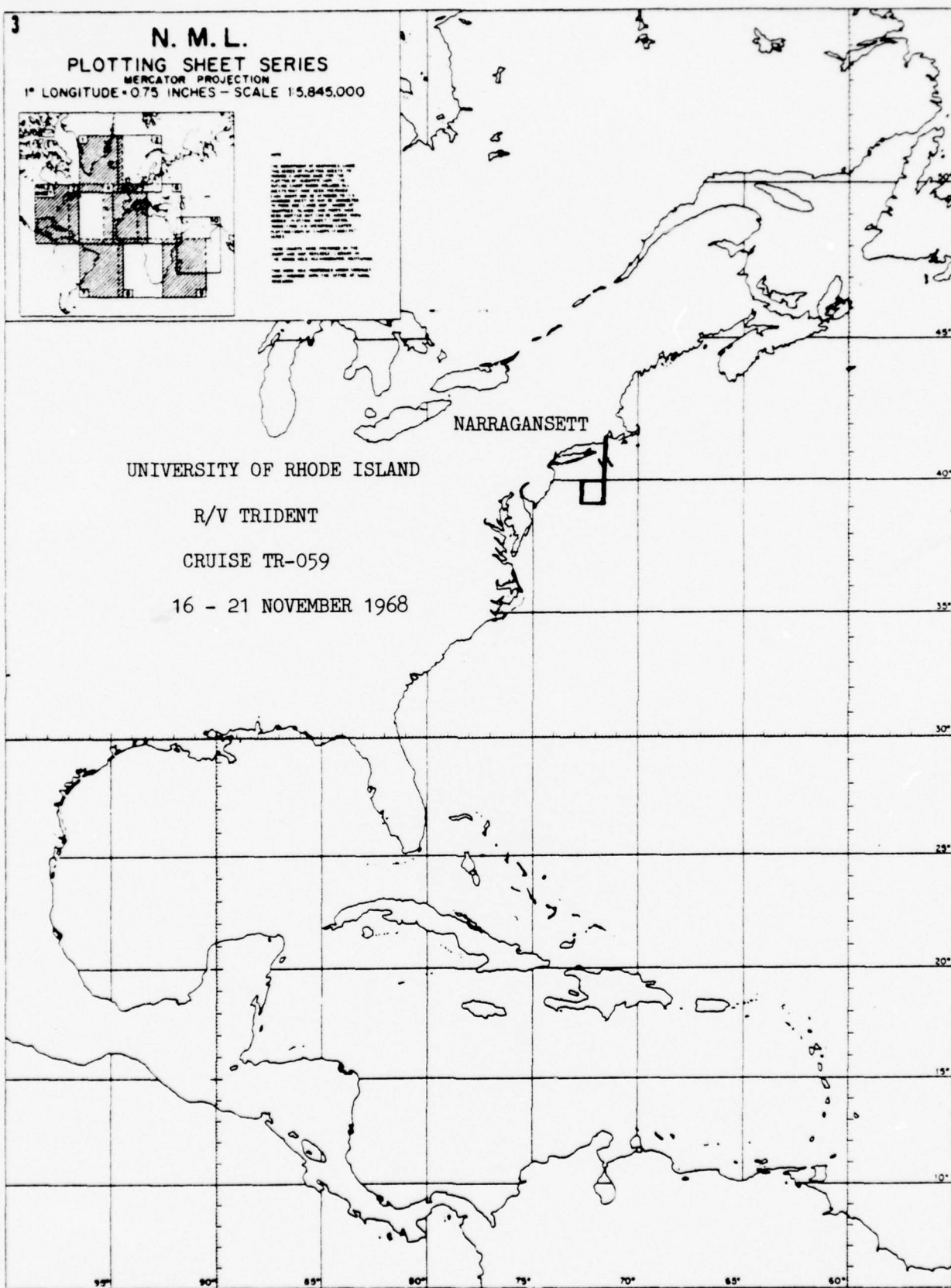
NARRAGANSETT

UNIVERSITY OF RHODE ISLAND

R/V TRIDENT

CRUISE TR-059

16 - 21 NOVEMBER 1968



Cruise No. TR-060

Dates: 22 November 1968

Area of Operation: Block Island  
Sound

Days at sea: 1

Funding: ONR

#### Program Description

The main objective of this cruise was to demonstrate the use of oceanographic equipment to URI oceanographic students.

#### Data Collected

None.

Equipment demonstrated: Nansen and Niskin casts, XBT, current drogue, neuston net, van Veen grab, Clarke-Bumpus sampler, sterile water sampler, phleger core

#### Participants

Dr. David Pratt

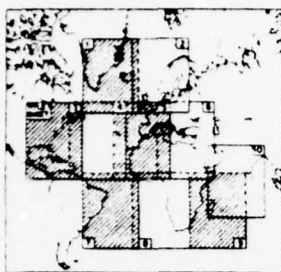
Chief Scientist

U.R.I.

44 students in scientific party

3

N. M. L.  
PLOTING SHEET SERIES  
MERCATOR PROJECTION  
1" LONGITUDE = 0.75 INCHES - SCALE 1:5,845,000



1. The following information is to be used in plotting the position of the vessel at the time of the sighting of the aircraft.

2. The following information is to be used in plotting the position of the aircraft at the time of the sighting of the vessel.

3. The following information is to be used in plotting the position of the aircraft at the time of the sighting of the vessel.

4. The following information is to be used in plotting the position of the aircraft at the time of the sighting of the vessel.

5. The following information is to be used in plotting the position of the aircraft at the time of the sighting of the vessel.

6. The following information is to be used in plotting the position of the aircraft at the time of the sighting of the vessel.

7. The following information is to be used in plotting the position of the aircraft at the time of the sighting of the vessel.

8. The following information is to be used in plotting the position of the aircraft at the time of the sighting of the vessel.

9. The following information is to be used in plotting the position of the aircraft at the time of the sighting of the vessel.

10. The following information is to be used in plotting the position of the aircraft at the time of the sighting of the vessel.

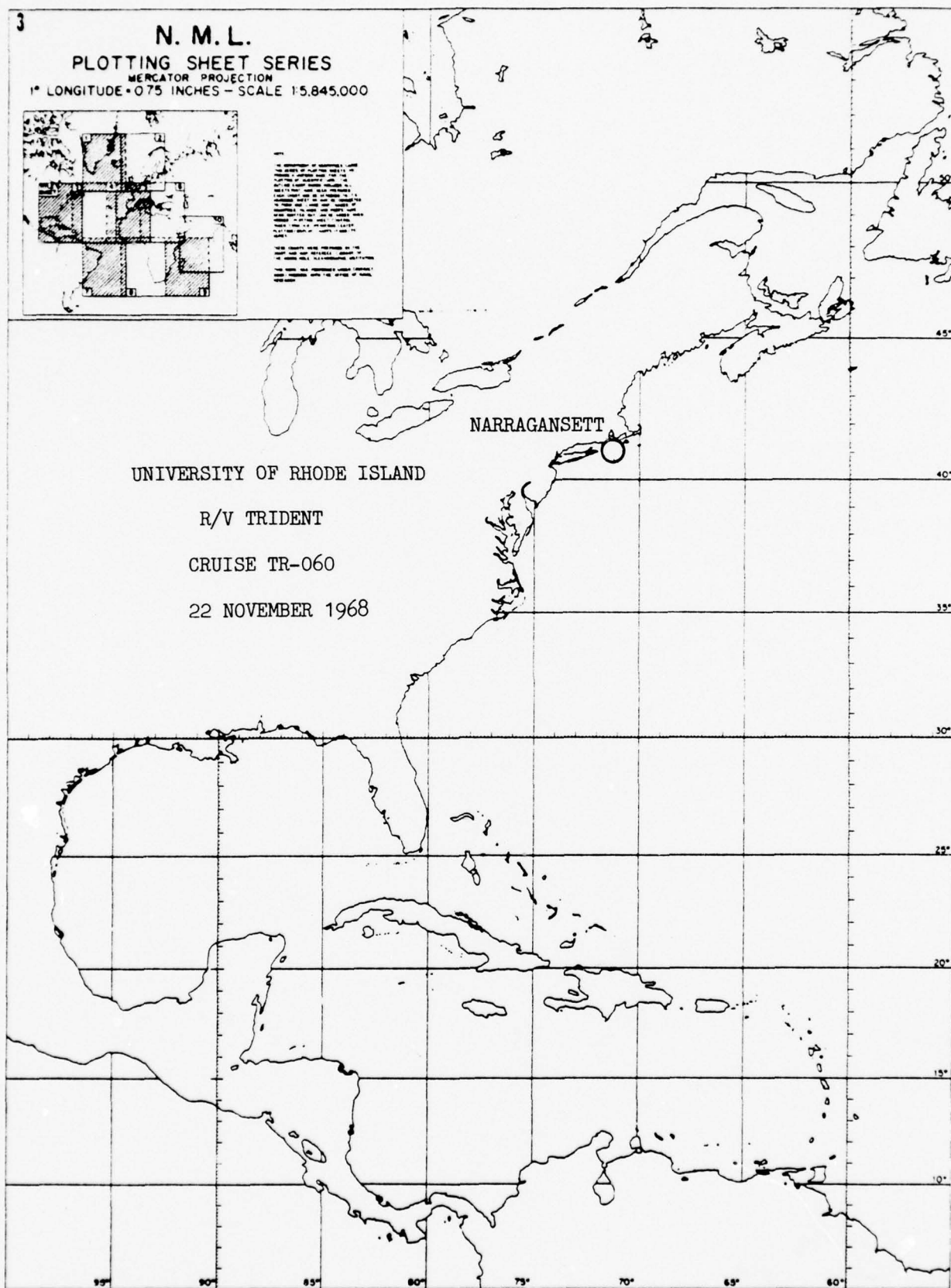
NARRAGANSETT

UNIVERSITY OF RHODE ISLAND

R/V TRIDENT

CRUISE TR-060

22 NOVEMBER 1968



Cruise No.: TR-061

Dates: 23 - 25 November 1963

Area of Operation: Northwest  
Atlantic Ocean

Days at sea: 3

Funding: ONR

#### Program Description

The main purpose of this cruise was

- a) to deploy two near-bottom current meters near the Hydrographer Canyon

#### Data Collected

- 1) Two current meters were deployed

#### Participants

Dr. J. A. Knauss	Chief Scientist	U.R.I.
Mr. P. P. Bedard	Electronic Engineer	U.R.I.
Mr. J. I. Sammons	Electronic Technician	U.R.I.
Mr. R. K. Greenall	Marine Technician	U.R.I.
Mr. T. C. Kennard	Marine Technician	U.R.I.

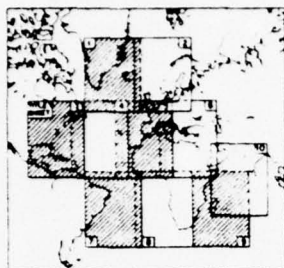
3

N. M. L.

PLOTING SHEET SERIES

MERCATOR PROJECTION

1° LONGITUDE = 0.75 INCHES - SCALE 1:5,845,000



LIST OF ISLANDS AND ROCKS  
IN THE NORTH ATLANTIC OCEAN  
FROM 10°N TO 60°N LATITUDE  
AND FROM 10°W TO 10°E LONGITUDE  
AS SHOWN ON THE MAP  
OF THE NORTH ATLANTIC OCEAN  
PUBLISHED BY THE  
HYDROGRAPHIC OFFICE  
WASHINGTON, D. C.  
1968

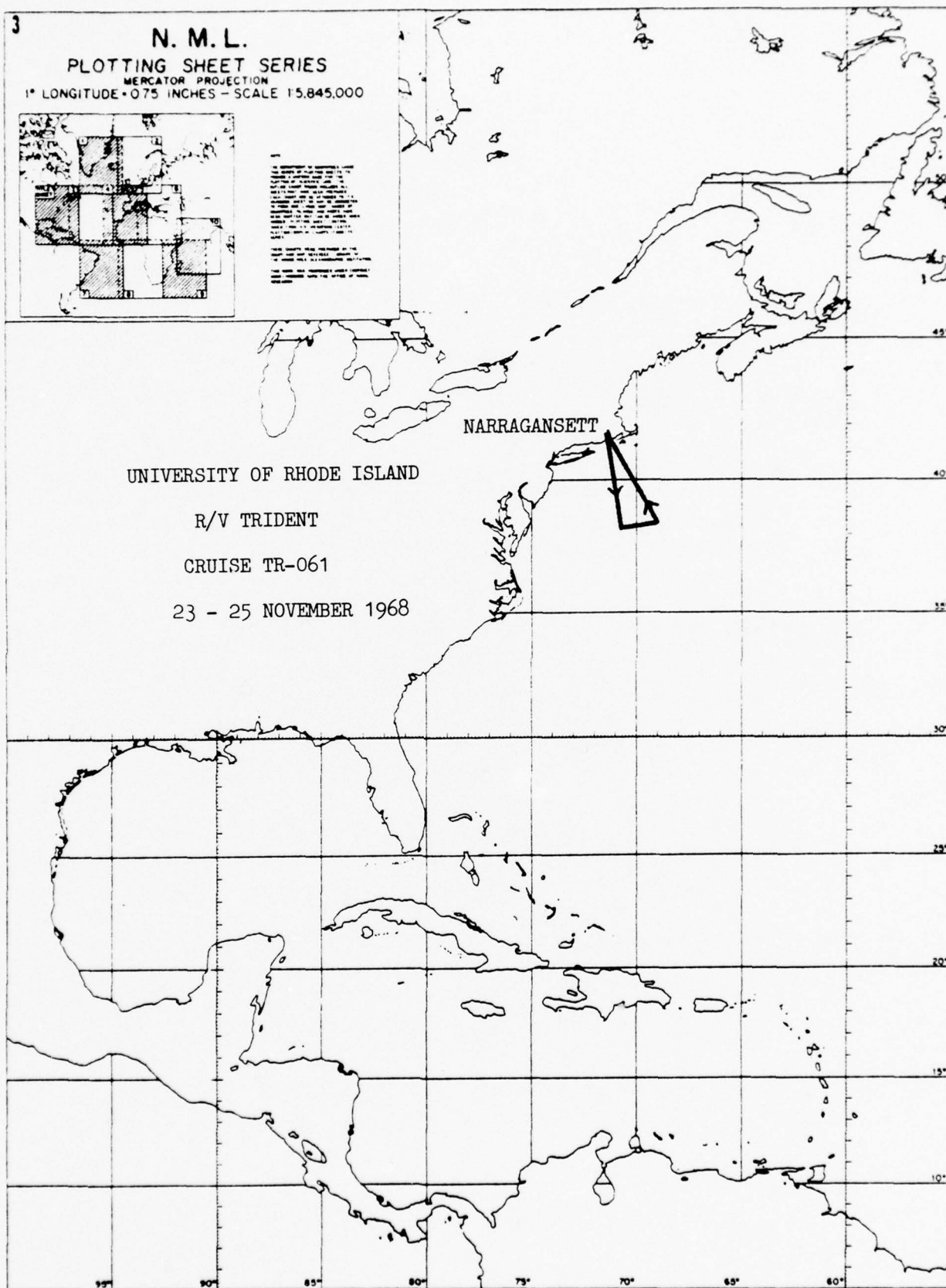
NARRAGANSETT

UNIVERSITY OF RHODE ISLAND

R/V TRIDENT

CRUISE TR-061

23 - 25 NOVEMBER 1968



Cruise No.: TR-062

Dates: 25 - 26 November 1968

Area of Operation: Rhode Island  
Sound

Days at sea: 1

Funding: ONR

Program Description

The main purpose of this cruise was

- a) to test oceanographic equipment at sea

Data Collected

- 1) A towed fish was tested at varying depths
- 2) Timed sphere buoy to record waves was tested

Participants

Dr. Hilbert Schenck	Chief Scientist	U.R.I.
Mr. Tim Kennard	Oceanographic Technician	U.R.I.
Mr. Al Blott	Graduate Student	U.R.I.
Mr. Bruce Crawford	Graduate Student	U.R.I.
Mr. Wilson Lamb	Graduate Student	U.R.I.
Mr. Russell Smith	Graduate Student	U.R.I.
Mr. Douglas Teeson	Graduate Student	U.R.I.

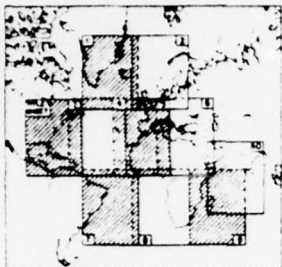
3

N. M. L.

PLOTING SHEET SERIES

MERCATOR PROJECTION

1" LONGITUDE = 0.75 INCHES - SCALE 1:5,845,000



1. All depths are in fathoms unless otherwise indicated.  
2. Soundings are given in fathoms, meters, or feet as indicated by the symbol.  
3. The depth of the water is indicated by the number in the sounding.  
4. The nature of the bottom is indicated by the letters following the number.  
5. The nature of the bottom is indicated by the letters following the number.  
6. The nature of the bottom is indicated by the letters following the number.  
7. The nature of the bottom is indicated by the letters following the number.  
8. The nature of the bottom is indicated by the letters following the number.  
9. The nature of the bottom is indicated by the letters following the number.  
10. The nature of the bottom is indicated by the letters following the number.

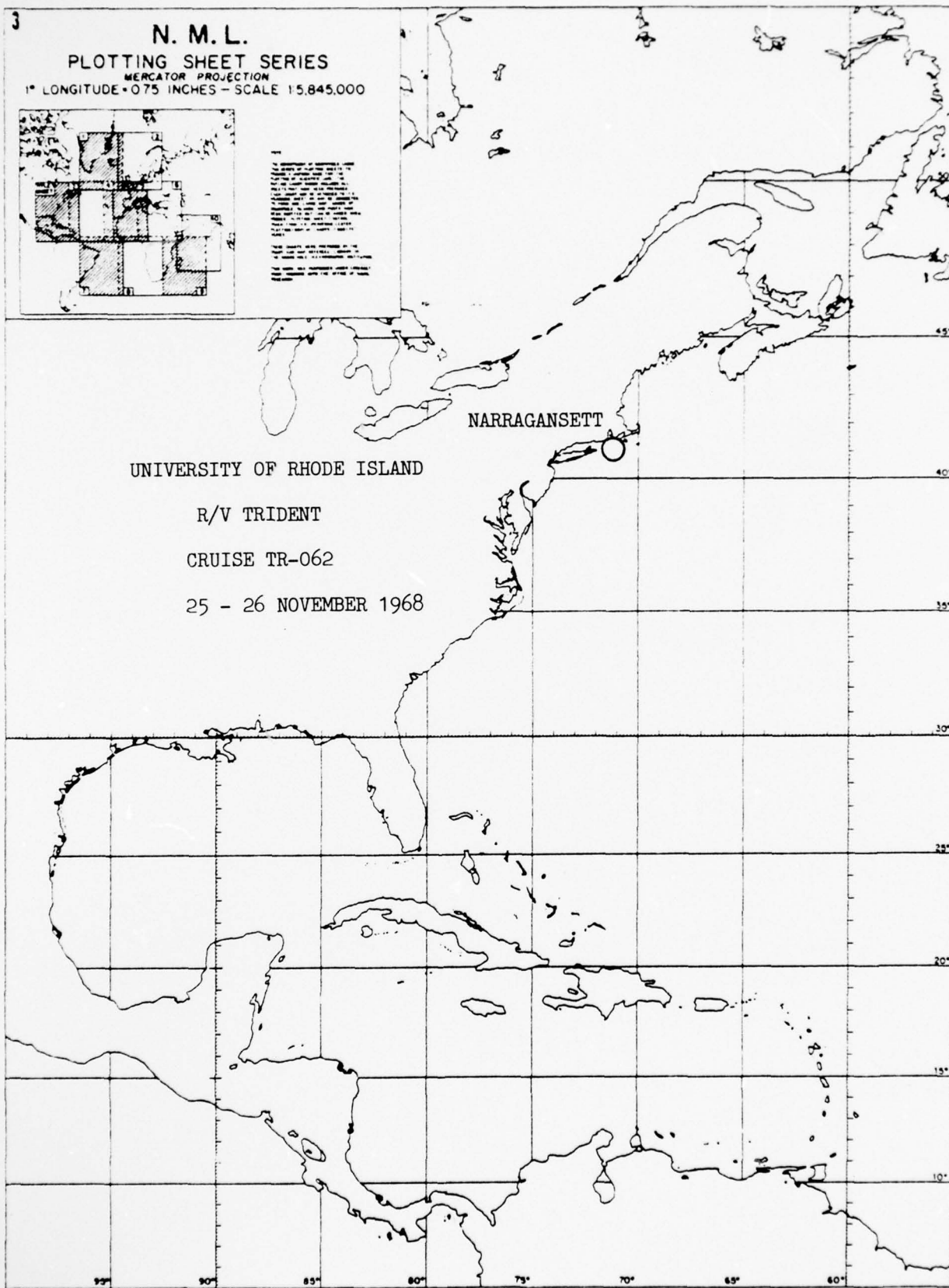
NARRAGANSETT

UNIVERSITY OF RHODE ISLAND

R/V TRIDENT

CRUISE TR-062

25 - 26 NOVEMBER 1968



Cruise No.: TR-063

Dates: 2 - 12 December 1968

Area of Operation: Northwest  
Atlantic Ocean

Days at Sea: 10

Funding:

#### Program Description

The main purposes of this cruise were

- a) to make biological/chemical studies in the Ocean Acre area

Poor weather reduced station time.

#### Data Collected

- 1) four trawl stations were made
- 2) one hydrographic station was occupied
- 3) two XBT's were taken

#### Participants

Dr. Theodore Napora	Chief Scientist	U.R.I.
Mr. Albert Brooks	Scientist	U.S.N.-U.S.L.
Mr. Roger Greenall	Marine Technician	U.R.I.
Mr. Richard Beider	Graduate Student	U.R.I.
Mr. George Bond	Graduate Student	U.R.I.
Mr. Henry Donaldson	Graduate Student	U.R.I.
Mr. Michael Keene	Graduate Student	U.R.I.
Mr. John Mason	Graduate Student	U.R.I.

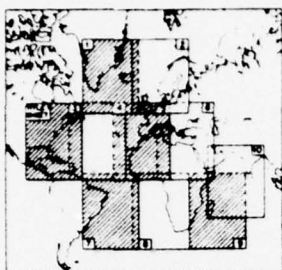
3

N. M. L.

## PLOTING SHEET SERIES

MERCATOR PROJECTION

1" LONGITUDE = 0.75 INCHES - SCALE 1:5,845,000



1. All bearings are in true degrees unless otherwise indicated.  
2. All distances are in statute miles unless otherwise indicated.  
3. All depths are in fathoms unless otherwise indicated.  
4. All soundings are in fathoms unless otherwise indicated.  
5. All bearings are in true degrees unless otherwise indicated.  
6. All distances are in statute miles unless otherwise indicated.  
7. All depths are in fathoms unless otherwise indicated.  
8. All soundings are in fathoms unless otherwise indicated.

NARRAGANSETT

UNIVERSITY OF RHODE ISLAND

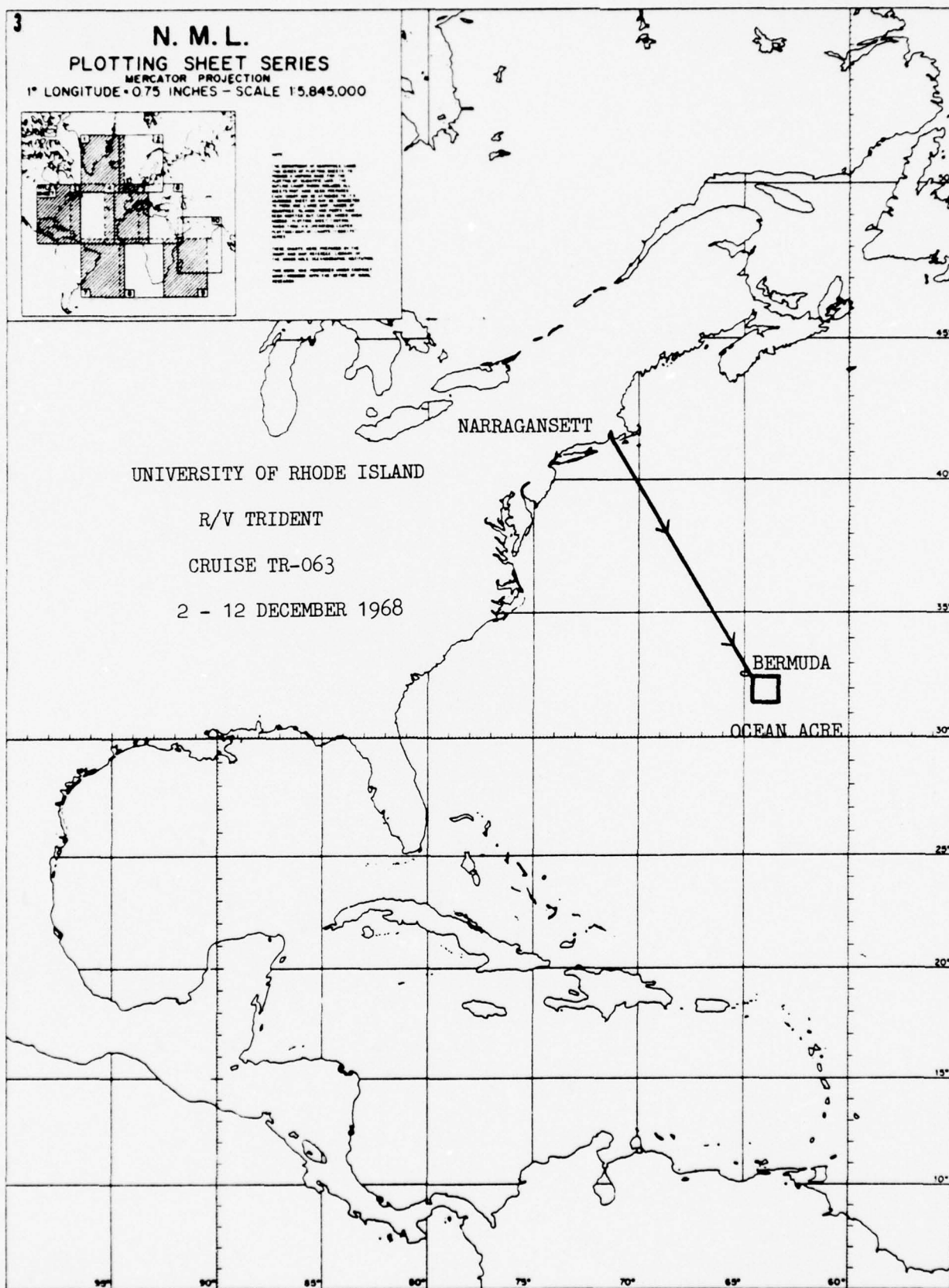
R/V TRIDENT

CRUISE TR-063

2 - 12 DECEMBER 1968

BERMUDA

OCEAN ACRE



Cruise No.: TR-064

Dates: 14 - 21 December 1968

Area of Operation: Northwest  
Atlantic Ocean

Days at sea: 8

Funding: ONR, NSF

#### Program Description

The main purposes of this cruise were

- a) to recover two current meter arrays deployed on TR-061
- b) to study cesium 137 at the surface and at depths

#### Data Collected

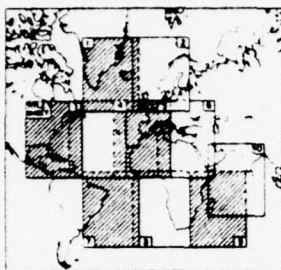
- 1) two hydrostations were occupied
- 2) 15 XBT's were taken
- 3) 12 surface cesium 137 samples were taken of about six hours' duration each

#### Participants

Dr. Stuart L. Kupferman	Chief Scientist	U.R.I.
Mr. Philip P. Bedard	Electronics Engineer	U.R.I.
Mr. Roger K. Greenall, Jr.	Marine Technician	U.R.I.
Mr. James I. Sammons	Electronics Technician	U.R.I.

3

N. M. L.  
PLOTING SHEET SERIES  
MERCATOR PROJECTION  
1" LONGITUDE = 0.75 INCHES - SCALE 1:5,845,000



1. NAME OF VESSEL  
2. NAME OF COMMANDER  
3. NAME OF OBSERVER  
4. NAME OF SIGHTER  
5. NAME OF TARGET  
6. NAME OF TARGET  
7. NAME OF TARGET  
8. NAME OF TARGET  
9. NAME OF TARGET  
10. NAME OF TARGET  
11. NAME OF TARGET  
12. NAME OF TARGET  
13. NAME OF TARGET  
14. NAME OF TARGET  
15. NAME OF TARGET  
16. NAME OF TARGET  
17. NAME OF TARGET  
18. NAME OF TARGET  
19. NAME OF TARGET  
20. NAME OF TARGET  
21. NAME OF TARGET  
22. NAME OF TARGET  
23. NAME OF TARGET  
24. NAME OF TARGET  
25. NAME OF TARGET  
26. NAME OF TARGET  
27. NAME OF TARGET  
28. NAME OF TARGET  
29. NAME OF TARGET  
30. NAME OF TARGET  
31. NAME OF TARGET  
32. NAME OF TARGET  
33. NAME OF TARGET  
34. NAME OF TARGET  
35. NAME OF TARGET  
36. NAME OF TARGET  
37. NAME OF TARGET  
38. NAME OF TARGET  
39. NAME OF TARGET  
40. NAME OF TARGET  
41. NAME OF TARGET  
42. NAME OF TARGET  
43. NAME OF TARGET  
44. NAME OF TARGET  
45. NAME OF TARGET  
46. NAME OF TARGET  
47. NAME OF TARGET  
48. NAME OF TARGET  
49. NAME OF TARGET  
50. NAME OF TARGET  
51. NAME OF TARGET  
52. NAME OF TARGET  
53. NAME OF TARGET  
54. NAME OF TARGET  
55. NAME OF TARGET  
56. NAME OF TARGET  
57. NAME OF TARGET  
58. NAME OF TARGET  
59. NAME OF TARGET  
60. NAME OF TARGET  
61. NAME OF TARGET  
62. NAME OF TARGET  
63. NAME OF TARGET  
64. NAME OF TARGET  
65. NAME OF TARGET  
66. NAME OF TARGET  
67. NAME OF TARGET  
68. NAME OF TARGET  
69. NAME OF TARGET  
70. NAME OF TARGET  
71. NAME OF TARGET  
72. NAME OF TARGET  
73. NAME OF TARGET  
74. NAME OF TARGET  
75. NAME OF TARGET  
76. NAME OF TARGET  
77. NAME OF TARGET  
78. NAME OF TARGET  
79. NAME OF TARGET  
80. NAME OF TARGET  
81. NAME OF TARGET  
82. NAME OF TARGET  
83. NAME OF TARGET  
84. NAME OF TARGET  
85. NAME OF TARGET  
86. NAME OF TARGET  
87. NAME OF TARGET  
88. NAME OF TARGET  
89. NAME OF TARGET  
90. NAME OF TARGET  
91. NAME OF TARGET  
92. NAME OF TARGET  
93. NAME OF TARGET  
94. NAME OF TARGET  
95. NAME OF TARGET  
96. NAME OF TARGET  
97. NAME OF TARGET  
98. NAME OF TARGET  
99. NAME OF TARGET  
100. NAME OF TARGET

NARRAGANSETT

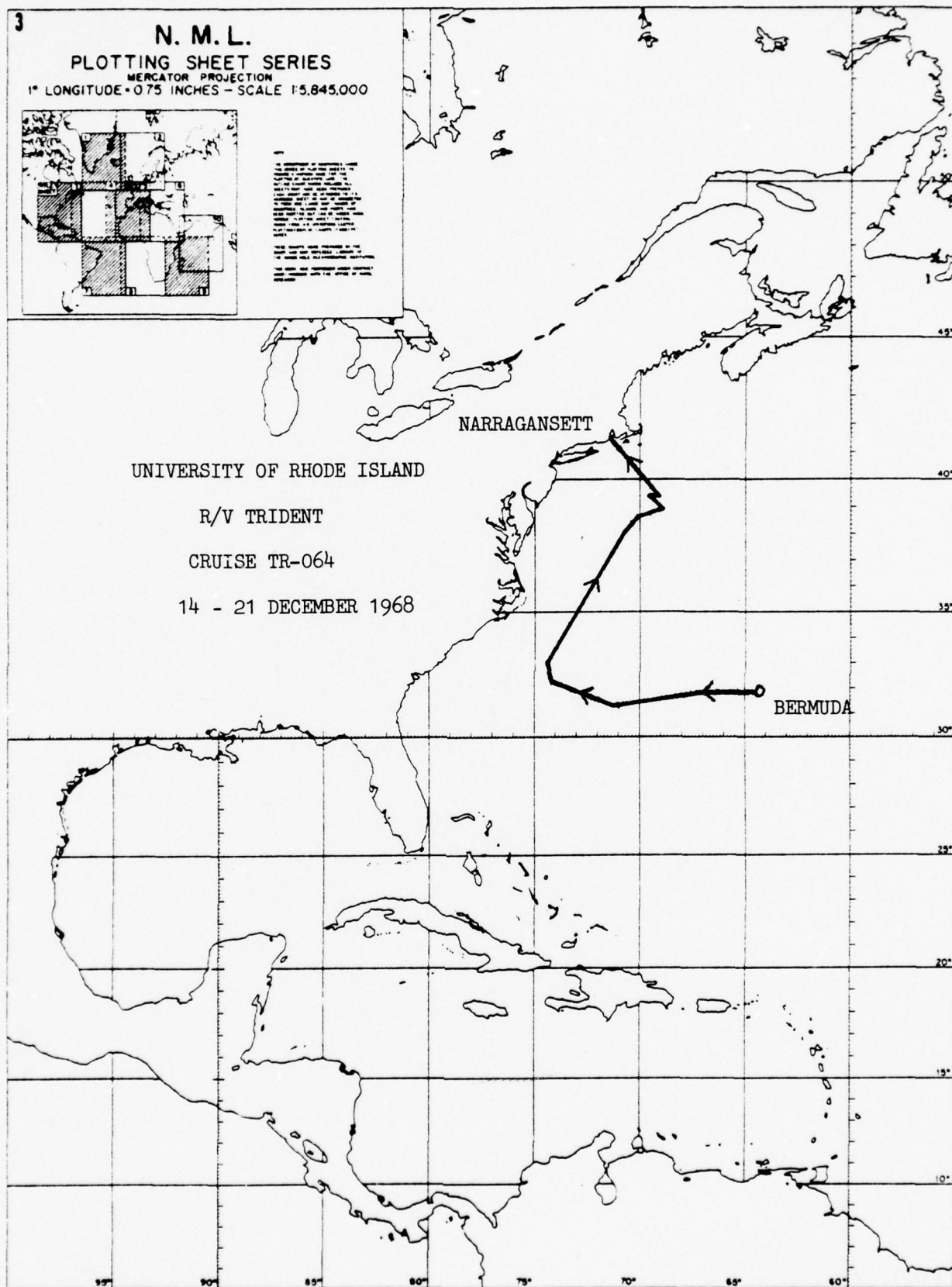
UNIVERSITY OF RHODE ISLAND

R/V TRIDENT

CRUISE TR-064

14 - 21 DECEMBER 1968

BERMUDA

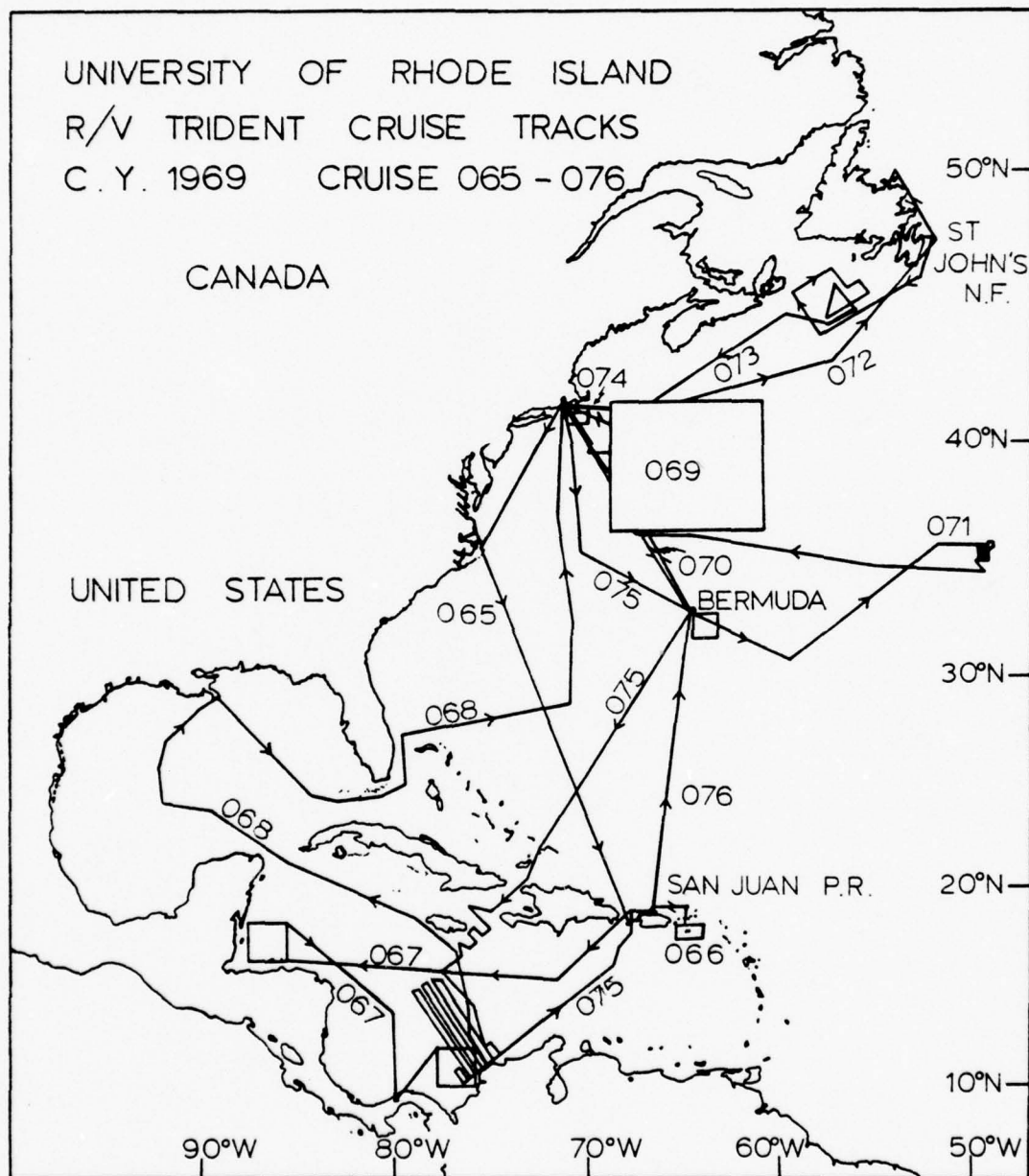


R/V TRIDENT Cruises - CY 1969

Cruise No.	Dates	Days at Sea	Area of Operation	Chief Scientist/ Affiliation*
065	24 Jan. - 9 Feb.	17	NW Atlantic, Caribbean	Winn
066	11-18 Feb.	8	Caribbean	Sturges
067	20 Feb. - 6 Apr.	43	Caribbean	Pilson
068	13 Apr. - 4 May	22	Caribbean Gulf of Mexico NW Atlantic	D. L. Johnson
069	16 June - 3 July	18	NW Atlantic	Zimmerman
070	9-29 July	20	NW Atlantic	Napora
071	30 July - 13 Aug.	15	NW Atlantic	McGregor
072	18-29 Aug.	12	North Atlantic	Winn
073	1-9 Sept.	9	North Atlantic	Webb/U. Mass.
074	5-6 Oct.	2	NW Atlantic	Schenck/OE, URI
075	9 Oct. - 12 Nov.	35	North Atlantic Caribbean	Krause, Betzer
076	15 Nov. - 3 Dec.	17	NW Atlantic	Napora

\*GS0/URI unless otherwise noted

UNIVERSITY OF RHODE ISLAND  
R/V TRIDENT CRUISE TRACKS  
C. Y. 1969 CRUISE 065 - 076



Cruise No.: TR-065

Dates: 24 January - 9 February 1969

Area of Operation: Northwest Atlantic  
Ocean and Caribbean  
Sea

Days at sea: 17

Funding: QNR  
NSF

### Program Description

The major objectives of this cruise were:

- a) to conduct behavioral and bioacoustic studies of whales and dolphins
- b) to study the spawning area of the American eel
- c) to obtain net tows of small deep-sea fish species
- d) to accomodate University of Puerto Rico scientists taking  
of XBTs, net tows and dredges

### Data Collected

- 1) 36 bioacoustic stations were made
- 2) numerous eel stations were occupied
- 3) 11 XBTs were taken
- 4) Item (d) was carried out

### Participants

Dr. Howard E. Winn	Chief Scientist	U.R.I.
Dr. Joseph Marshall	Asst. Professor	W. Virginia Univ.
Mr. Paul J. Perkins	Oceanographic Specialist	U.R.I.
Mr. James Fish	Graduate Student	U.R.I.
Ms. Susan Hammen	Graduate Student	U.R.I.
Ms. Deborah Kennedy	Biological Illustrator	U.R.I.
Mr. Vic Kennedy	Graduate Student	U.R.I.
Mr. David Morgan	Graduate Student	U.R.I.
Mr. Steve Rebach	Graduate Student	U.R.I.
Mr. William Richkus	Graduate Student	U.R.I.
Mr. John Brittain, Jr.	Research Assistant	Oberlin College
Ms. Lynn Haines	Research Assistant	Univ. of Rochester

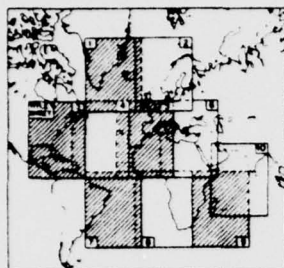
3

N. M. L.

## PLOTting SHEET SERIES

MERCATOR PROJECTION

1° LONGITUDE = 0.75 INCHES - SCALE 1:5,845,000



NOTE: This sheet is a Mercator projection map of the North Atlantic Ocean, showing the coastline of North America and the surrounding waters. The map is divided into a grid of 1-degree squares. The latitude ranges from 10°N to 45°N, and the longitude ranges from 60°W to 90°W. The map is titled 'N. M. L. PLOTting SHEET SERIES' and includes the text 'MERCATOR PROJECTION' and '1° LONGITUDE = 0.75 INCHES - SCALE 1:5,845,000'. The map is labeled with 'NARRAGANSETT' and 'SAN JUAN P.R.' and includes the text 'UNIVERSITY OF RHODE ISLAND', 'R/V TRIDENT', 'CRUISE TR-065', and '24 JANUARY - 9 FEBRUARY 1969'.

NARRAGANSETT

UNIVERSITY OF RHODE ISLAND

R/V TRIDENT

CRUISE TR-065

24 JANUARY - 9 FEBRUARY 1969

SAN JUAN P.R.

Cruise No.: TR-066

Dates: 11 - 18 February 1969

Area of Operation: Caribbean Sea

Days at sea: 8

Funding: ONR, NSF

#### Program Description

The main objectives of this cruise were:

- a) to study deepwater and bottom currents in the Jungfern Passage by
- b) deploying bottom current meters and
- c) STP and Nansen casts and bathymetry

#### Data Collected

- 1) 19 STD stations were occupied
- 2) 17 hydrographic stations were taken
- 3) three current meters were deployed and recovered
- 4) bathymetry profiles were run

#### Participants

Dr. W. Sturges	Chief Scientist	U.R.I.
Mr. P. Bedard	Electronics Engineer	U.R.I.
Mr. R. E. Smith	Oceanographic Specialist	U.R.I.
Mr. R. K. Sexton	Sr. Marine Technician	U.R.I.
Mr. M. Harvey	Marine Technician	U.R.I.
Mr. T. Kennard	Marine Technician	U.R.I.
Mr. J. Sammons	Research Technician	U.R.I.
Mr. J. Demendow	Graduate Student	U.R.I.
Mr. R. Heavers	Graduate Student	U.R.I.
Mr. D. E. Moore	Graduate Student	Johns Hopkins Univ.
Mr. P. L. Richardson	Graduate Student	U.R.I.
Mr. J. Tapiro	Student	U.R.I.

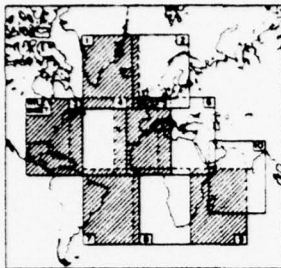
3

N. M. L.

## PLOTting SHEET SERIES

MERCATOR PROJECTION

1" LONGITUDE = 0.75 INCHES - SCALE 1:5,845,000



1. This sheet covers the area from 60° to 65° N. latitude and 95° to 60° W. longitude. It is one of a series of sheets covering the North Atlantic Ocean.

2. The scale of this sheet is 1 inch = 0.75 degrees of longitude. The scale of the series is 1 inch = 0.75 degrees of longitude.

3. The projection is Mercator.

4. The datum is the North American Datum of 1983.

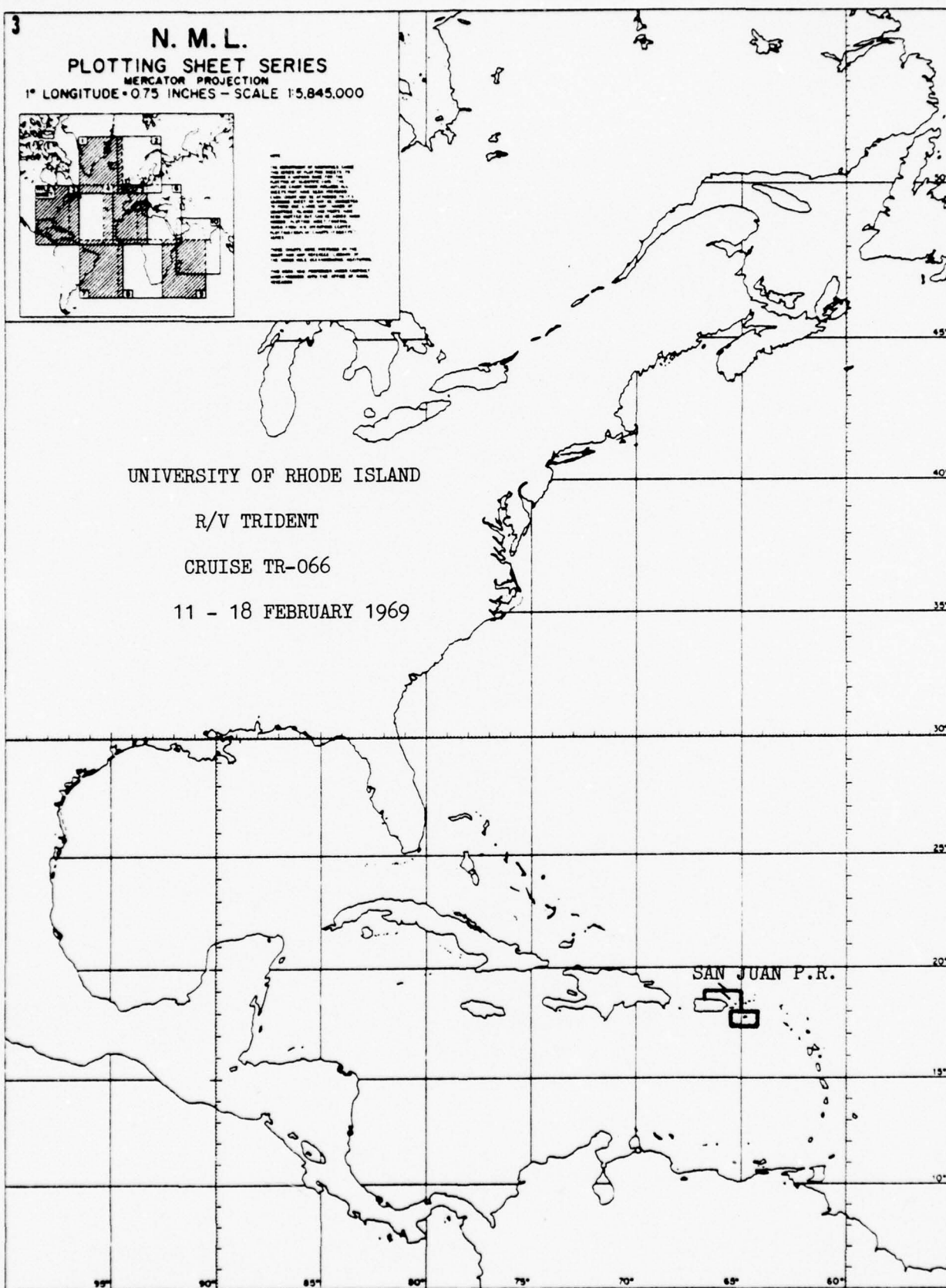
5. The sheet is one of a series of sheets covering the North Atlantic Ocean.

UNIVERSITY OF RHODE ISLAND

R/V TRIDENT

CRUISE TR-066

11 - 18 FEBRUARY 1969



Cruise No.: TR-067

Dates: 20 February - 6 April 1969

Area of Operation: Caribbean Sea

Days at sea: 43

Funding: ONR

#### Program Description

The major programs on this cruise were:

- a) to perform geophysical and geological surveys off Honduras and British Honduras and off the northwest coast of Colombia

#### Data Collected

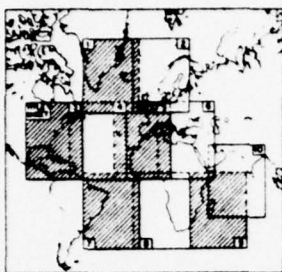
- 1) 4,245 n.m. of bathymetric and magnetic profiles were taken
- 2) 1,785 n.m. of seismic reflection profiles were run
- 3) four dredge stations were occupied

#### Participants

Mr. William Dillon	Chief Scientist	U.R.I.
Mr. Eric Christoffersen	Co-Investigator	U.R.I.
Mr. Paul Pinet	Co-Investigator	U.R.I.
Ms. Christine Trmal	Technician	U.R.I.
Mr. Arthur Buddington	Marine Technician	U.R.I.
Mr. Michael Harvey	Marine Technician	U.R.I.
Mr. Timothy Kennard	Marine Technician	U.R.I.
Mr. Jim Tapper	Student	U.R.I.

3

N. M. L.  
PLOTING SHEET SERIES  
MERCATOR PROJECTION  
1" LONGITUDE = 0.75 INCHES - SCALE 1:5,845,000



1. Symbols for land, water, and other features are defined in this block.

2. The map is plotted on a Mercator projection.

3. The scale is 1 inch = 0.75 degrees of longitude.

4. The map is plotted on a grid of 1 degree squares.

5. The map is plotted on a grid of 1 degree squares.

6. The map is plotted on a grid of 1 degree squares.

7. The map is plotted on a grid of 1 degree squares.

8. The map is plotted on a grid of 1 degree squares.

9. The map is plotted on a grid of 1 degree squares.

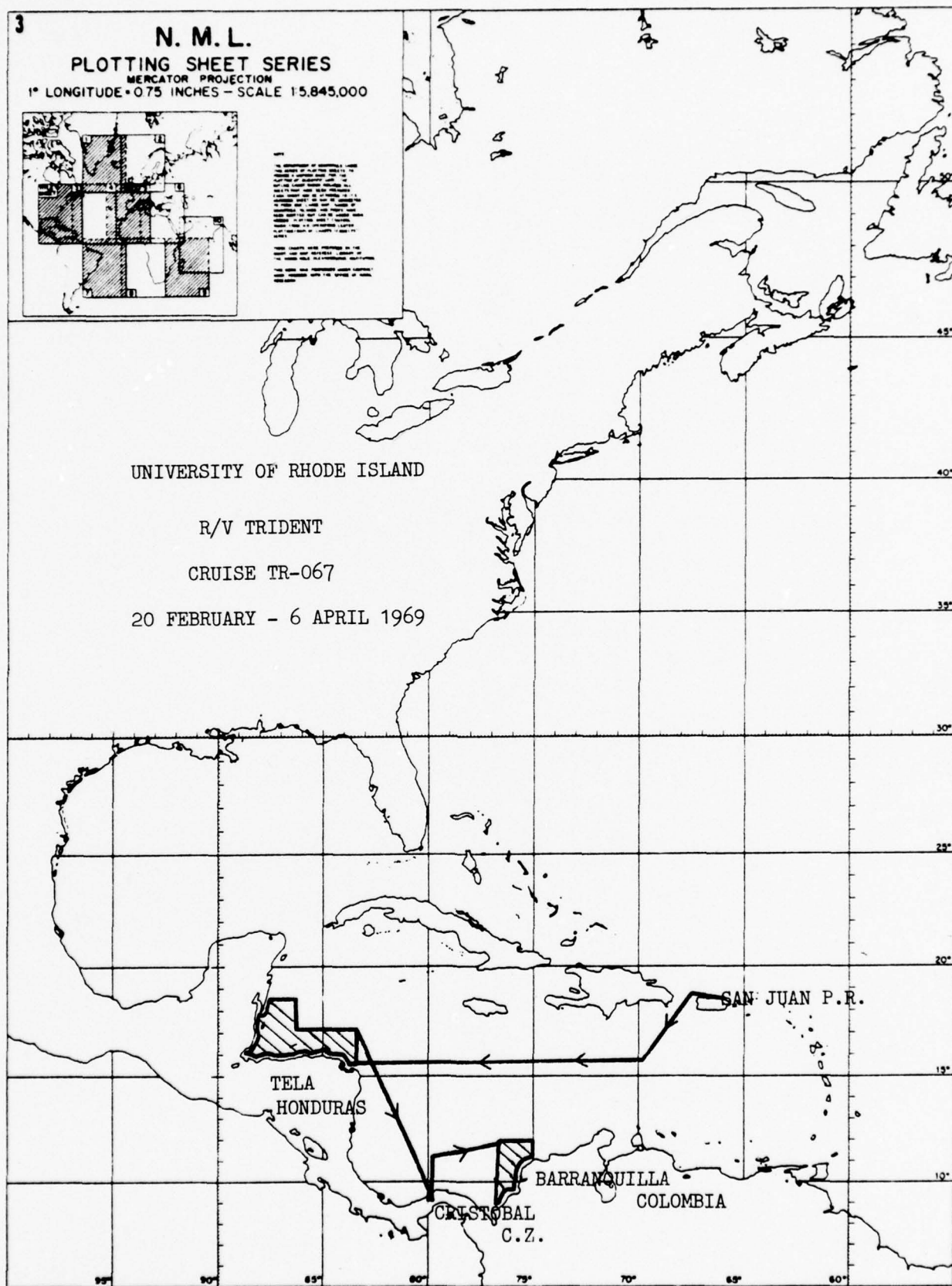
10. The map is plotted on a grid of 1 degree squares.

UNIVERSITY OF RHODE ISLAND

R/V TRIDENT

CRUISE TR-067

20 FEBRUARY - 6 APRIL 1969



Cruise No.: TR-068

Dates: 13 April - 4 May 1969

Days at sea: 22

Funding: ONR, NSF

Area of Operation: Caribbean Sea,  
Gulf of Mexico  
and Northwest  
Atlantic Ocean

#### Program Description

The major programs on this cruise were:

- a) to investigate the regional variability of particulate iron and trace metals in the study areas
- b) to sample for chemical analysis off the Magdalena and Mississippi River mouths

#### Data Collected

- 1) 58 hydrostations were occupied
- 2) 12 XBTs were taken

#### Participants

Mr. David L. Johnson  
Mr. Peter Betzer  
Mr. Sam Miller

Chief Scientist  
Graduate Student  
Associate Fellow

U.R.I.  
U.R.I.  
Inst. for Policy  
Studies

Mr. T. C. Kennard  
Mr. Frank Rose

Marine Technician  
Marine Technician

U.R.I.  
U.R.I.

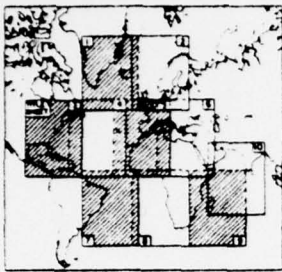
3

N. M. L.

## PLOTING SHEET SERIES

MERCATOR PROJECTION

1" LONGITUDE = 0.75 INCHES - SCALE 1:5,845,000



1. SYMBOLS FOR OBSERVATIONS  
2. SYMBOLS FOR OBSERVATIONS  
3. SYMBOLS FOR OBSERVATIONS  
4. SYMBOLS FOR OBSERVATIONS  
5. SYMBOLS FOR OBSERVATIONS  
6. SYMBOLS FOR OBSERVATIONS  
7. SYMBOLS FOR OBSERVATIONS  
8. SYMBOLS FOR OBSERVATIONS  
9. SYMBOLS FOR OBSERVATIONS  
10. SYMBOLS FOR OBSERVATIONS  
11. SYMBOLS FOR OBSERVATIONS  
12. SYMBOLS FOR OBSERVATIONS  
13. SYMBOLS FOR OBSERVATIONS  
14. SYMBOLS FOR OBSERVATIONS  
15. SYMBOLS FOR OBSERVATIONS  
16. SYMBOLS FOR OBSERVATIONS  
17. SYMBOLS FOR OBSERVATIONS  
18. SYMBOLS FOR OBSERVATIONS  
19. SYMBOLS FOR OBSERVATIONS  
20. SYMBOLS FOR OBSERVATIONS  
21. SYMBOLS FOR OBSERVATIONS  
22. SYMBOLS FOR OBSERVATIONS  
23. SYMBOLS FOR OBSERVATIONS  
24. SYMBOLS FOR OBSERVATIONS  
25. SYMBOLS FOR OBSERVATIONS  
26. SYMBOLS FOR OBSERVATIONS  
27. SYMBOLS FOR OBSERVATIONS  
28. SYMBOLS FOR OBSERVATIONS  
29. SYMBOLS FOR OBSERVATIONS  
30. SYMBOLS FOR OBSERVATIONS  
31. SYMBOLS FOR OBSERVATIONS  
32. SYMBOLS FOR OBSERVATIONS  
33. SYMBOLS FOR OBSERVATIONS  
34. SYMBOLS FOR OBSERVATIONS  
35. SYMBOLS FOR OBSERVATIONS  
36. SYMBOLS FOR OBSERVATIONS  
37. SYMBOLS FOR OBSERVATIONS  
38. SYMBOLS FOR OBSERVATIONS  
39. SYMBOLS FOR OBSERVATIONS  
40. SYMBOLS FOR OBSERVATIONS  
41. SYMBOLS FOR OBSERVATIONS  
42. SYMBOLS FOR OBSERVATIONS  
43. SYMBOLS FOR OBSERVATIONS  
44. SYMBOLS FOR OBSERVATIONS  
45. SYMBOLS FOR OBSERVATIONS  
46. SYMBOLS FOR OBSERVATIONS  
47. SYMBOLS FOR OBSERVATIONS  
48. SYMBOLS FOR OBSERVATIONS  
49. SYMBOLS FOR OBSERVATIONS  
50. SYMBOLS FOR OBSERVATIONS  
51. SYMBOLS FOR OBSERVATIONS  
52. SYMBOLS FOR OBSERVATIONS  
53. SYMBOLS FOR OBSERVATIONS  
54. SYMBOLS FOR OBSERVATIONS  
55. SYMBOLS FOR OBSERVATIONS  
56. SYMBOLS FOR OBSERVATIONS  
57. SYMBOLS FOR OBSERVATIONS  
58. SYMBOLS FOR OBSERVATIONS  
59. SYMBOLS FOR OBSERVATIONS  
60. SYMBOLS FOR OBSERVATIONS  
61. SYMBOLS FOR OBSERVATIONS  
62. SYMBOLS FOR OBSERVATIONS  
63. SYMBOLS FOR OBSERVATIONS  
64. SYMBOLS FOR OBSERVATIONS  
65. SYMBOLS FOR OBSERVATIONS  
66. SYMBOLS FOR OBSERVATIONS  
67. SYMBOLS FOR OBSERVATIONS  
68. SYMBOLS FOR OBSERVATIONS  
69. SYMBOLS FOR OBSERVATIONS  
70. SYMBOLS FOR OBSERVATIONS  
71. SYMBOLS FOR OBSERVATIONS  
72. SYMBOLS FOR OBSERVATIONS  
73. SYMBOLS FOR OBSERVATIONS  
74. SYMBOLS FOR OBSERVATIONS  
75. SYMBOLS FOR OBSERVATIONS  
76. SYMBOLS FOR OBSERVATIONS  
77. SYMBOLS FOR OBSERVATIONS  
78. SYMBOLS FOR OBSERVATIONS  
79. SYMBOLS FOR OBSERVATIONS  
80. SYMBOLS FOR OBSERVATIONS  
81. SYMBOLS FOR OBSERVATIONS  
82. SYMBOLS FOR OBSERVATIONS  
83. SYMBOLS FOR OBSERVATIONS  
84. SYMBOLS FOR OBSERVATIONS  
85. SYMBOLS FOR OBSERVATIONS  
86. SYMBOLS FOR OBSERVATIONS  
87. SYMBOLS FOR OBSERVATIONS  
88. SYMBOLS FOR OBSERVATIONS  
89. SYMBOLS FOR OBSERVATIONS  
90. SYMBOLS FOR OBSERVATIONS  
91. SYMBOLS FOR OBSERVATIONS  
92. SYMBOLS FOR OBSERVATIONS  
93. SYMBOLS FOR OBSERVATIONS  
94. SYMBOLS FOR OBSERVATIONS  
95. SYMBOLS FOR OBSERVATIONS  
96. SYMBOLS FOR OBSERVATIONS  
97. SYMBOLS FOR OBSERVATIONS  
98. SYMBOLS FOR OBSERVATIONS  
99. SYMBOLS FOR OBSERVATIONS  
100. SYMBOLS FOR OBSERVATIONS

NARRAGANSETT

UNIVERSITY OF RHODE ISLAND

R/V TRIDENT

CRUISE TR-068

13 APRIL - 4 MAY 1969

BARRANQUILLA  
COLOMBIA

Cruise No.: TR-069

Dates: 16 June - 3 July 1969

Area of Operation: Northwest  
Atlantic Ocean

Days at sea: 18

Funding: ONR

#### Program Description

The major programs on this cruise were:

- a) to investigate the sedimentary processes and environment on the continental rise
- b) to complete seismic studies of the inner Rhode Island shelf

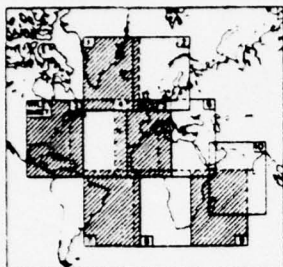
#### Data Collected

- 1) 20 gravity cores were taken
- 2) four camera stations were occupied
- 3) three current meter arrays were recovered
- 4) 885 n.m. of seismic reflection profiles were run

#### Participants

Mr. H. Zimmerman	Chief Scientist	U.R.I.
Dr. F. Haley	Professor	Keene State College, N.H.
Mr. A. Buddington	Oceanographic Specialist	U.R.I.
Mr. F. Rose	Oceanographic Specialist	U.R.I.
Mr. J. Sammons	Research Technician	U.R.I.
Mr. C. McClennen	Graduate Student	U.R.I.
Mr. H. Garabedian	Student	U. Mass.
Mr. P. Mushovic	Student	U. Mass.

1° LONGITUDE = 0.75 INCHES - SCALE 1:5,845,000

[illegible]

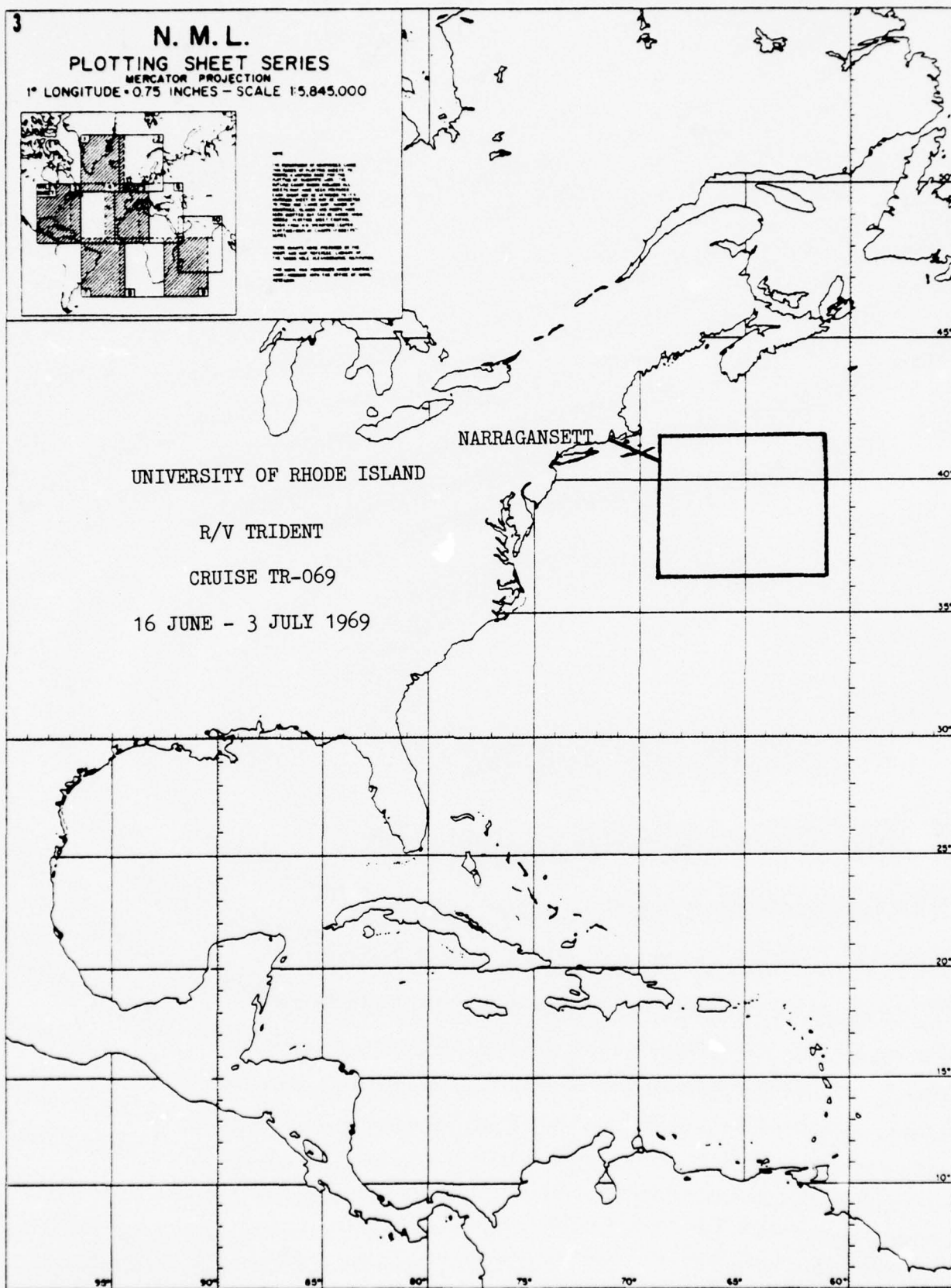
NARRAGANSETT

UNIVERSITY OF RHODE ISLAND

R/V TRIDENT

CRUISE TR-069

16 JUNE - 3 JULY 1969



Cruise No.: TR-070

Dates: 9 - 29 July 1969

Area of Operation: Northwest  
Atlantic Ocean

Days at sea: 20

Funding: ONR

#### Program Description

The major programs on this cruise were:

- a) to continue the Ocean Acre program by making biological studies in the area

#### Data Collected

- 1) 18 trawls were taken
- 2) 11 net tows were recovered
- 3) one hydrostation was occupied
- 4) eight XBTs were taken

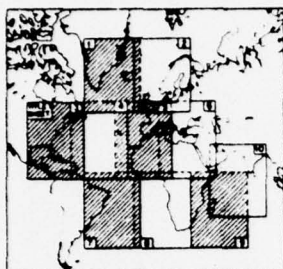
#### Participants

Dr. Theodore Napora	Chief Scientist	U.R.I.
Dr. Elijah Swift	Assistant Professor	U.R.I.
Mr. Albert Brooks	Scientist	NUSL
Mr. James Lamoureaux	Scientist	NUSL
Mr. William Hahn	Marine Technician	U.R.I.
Mr. Timothy Kennard	Marine Technician	U.R.I.
Mr. Henry Donaldson	Graduate Student	U.R.I.

3

# N. M. L. PLOTING SHEET SERIES

MERCATOR PROJECTION  
1" LONGITUDE = 0.75 INCHES - SCALE 1:5,845,000



1. The plotting sheet is a Mercator projection map of the North Atlantic Ocean, showing the coastline of North America and the British Isles. The map is divided into a grid of 1-degree squares. The latitude ranges from 10°N to 45°N, and the longitude ranges from 90°W to 60°W. The map is titled 'N. M. L. PLOTING SHEET SERIES' and 'MERCATOR PROJECTION'. The scale is 1 inch = 0.75 degrees of longitude, or 1:5,845,000. The map is numbered '3' in the top left corner. The map shows the coastline of North America, including the Gulf of Mexico, the Caribbean Sea, and the Atlantic Ocean. The British Isles are shown in the upper right corner. The map is divided into a grid of 1-degree squares. The latitude ranges from 10°N to 45°N, and the longitude ranges from 90°W to 60°W. The map is titled 'N. M. L. PLOTING SHEET SERIES' and 'MERCATOR PROJECTION'. The scale is 1 inch = 0.75 degrees of longitude, or 1:5,845,000. The map is numbered '3' in the top left corner.

NARRAGANSETT

UNIVERSITY OF RHODE ISLAND

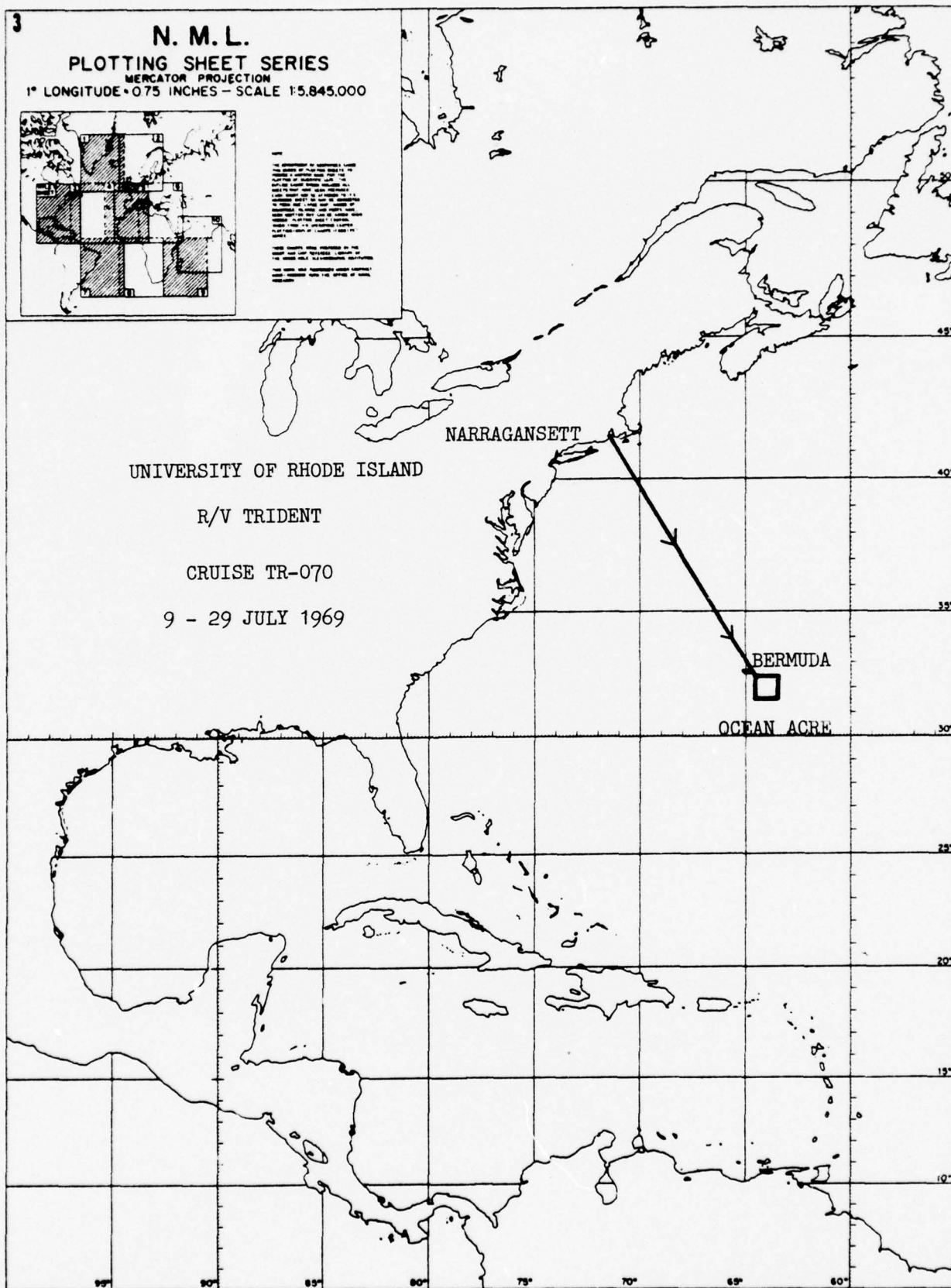
R/V TRIDENT

CRUISE TR-070

9 - 29 JULY 1969

BERMUDA

OCEAN ACRE



Cruise No.: TR-071

Dates: 30 July - 13 August 1969

Area of Operation: Northwest  
Atlantic Ocean

Days at sea: 15

Funding: ONR

#### Program Description

The major purposes of this cruise were:

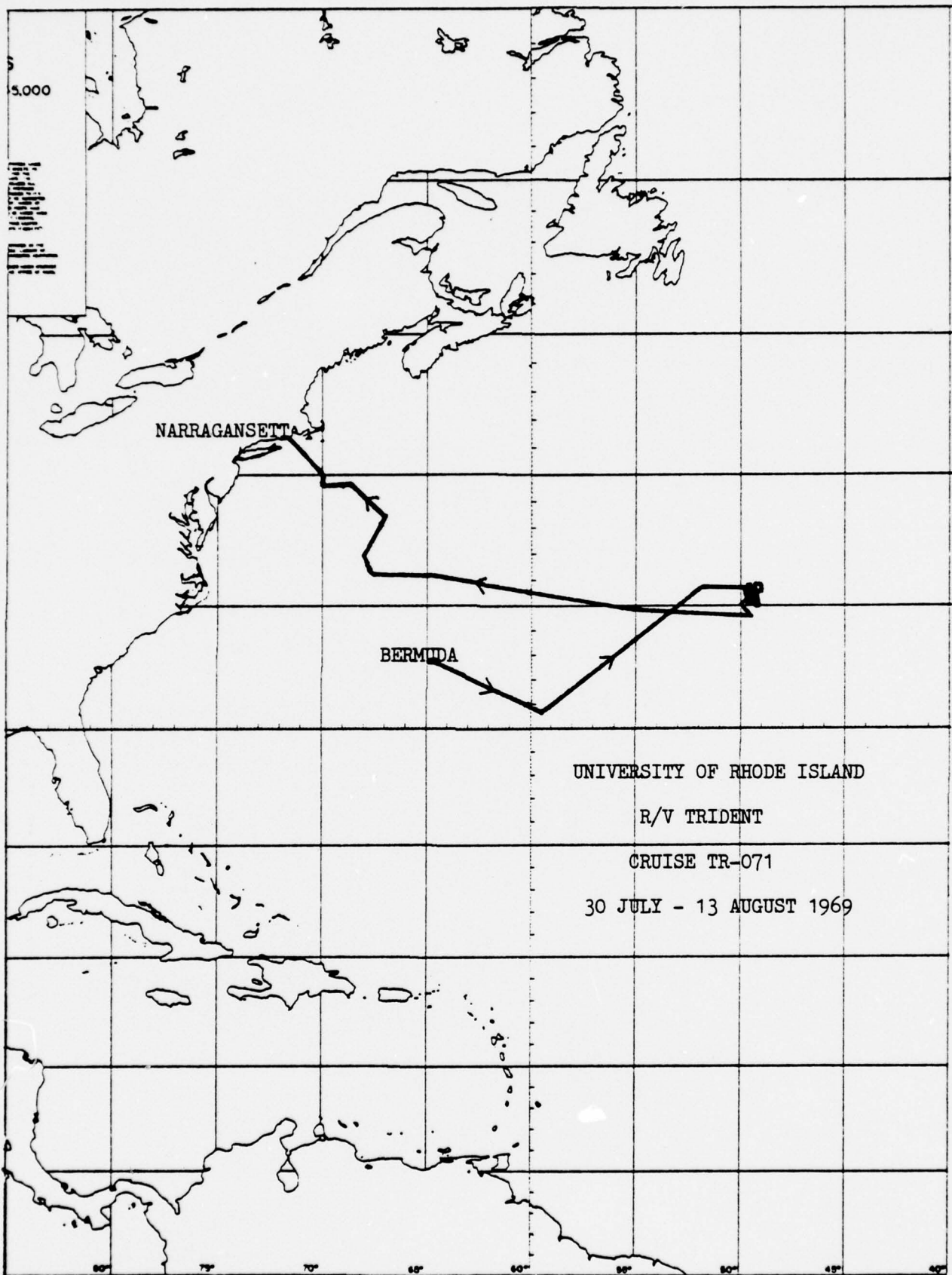
- a) to study the Corner Seamount area using geological and geophysical sampling techniques
- b) to take grab samples on the continental shelf
- c) to run a BT profile across the continental slope

#### Data Collected

- 1) five dredges were taken
- 2) five camera stations were occupied
- 3) one core was taken
- 4) two grab samples were taken
- 5) 2,460 n.m. of bathymetric and magnetic profiles were run
- 6) seven XBTs were taken

#### Participants

Ms. Bonnie A. McGregor	Chief Scientist	U.R.I.
Mr. Robert Cooke	Geochemist	International Nickel, Inc.
Mr. William Hahn	Oceanographic Specialist	U.R.I.
Mr. Timothy Kennard	Oceanographic Specialist	U.R.I.
Mr. John Farrington	Graduate Student	U.R.I.
Mr. Thomas A. Johnston	Graduate Student	U.R.I.
Mr. Philip Meyers	Graduate Student	U.R.I.
Ms. Doris Smith	Student	Hope College
Mr. Richard Sugatt	Student	Wesleyan Univ.



Cruise No.: TR-072

Dates: 18 - 29 August 1969

Area of Operation: North and  
Northwest  
Atlantic Ocean

Days at sea: 12

Funding: ONR

### Program Description

The major programs on this cruise were:

- a) to record/playback sounds to pilot whales and other cetaceans
- b) to follow whales for a one-day period

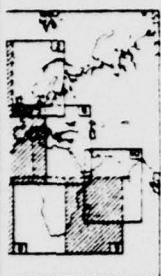
### Data Collected

- 1) seven replicate series of playback sounds were transmitted to pilot whales
- 2) a continuous one-day sampling of sounds of a large herd of pilot whales was made
- 3) observations of a large number of whales, porpoises/dolphins were made

### Participants

Dr. Howard E. Winn	Chief Scientist	U.R.I.
Mr. Paul J. Perkins	Oceanographic Specialist	U.R.I.
Mr. Pierce Fenhagen	Oceanographic Specialist	U.R.I.
Ms. Alexandra Chaffee	Graduate Student	U.R.I.
Ms. Rosalind Cohen	Graduate Student	U.R.I.
Mr. James Hain	Graduate Student	U.R.I.
Mr. Jeffrey Jackerson	Graduate Student	U.R.I.
Ms. Suzanne Smith	Graduate Student	U.R.I.
Mr. Raymond Kenney	Student	U.R.I.
Ms. Lois Knight	Student	U.R.I.
Mr. Gregory Winn	Assistant	U.R.I.

N. M. L.  
TING SHEET SERIES  
MERCATOR PROJECTION  
• 0.75 INCHES - SCALE 1:5,845,000



ST. JOHN'S  
N.F.

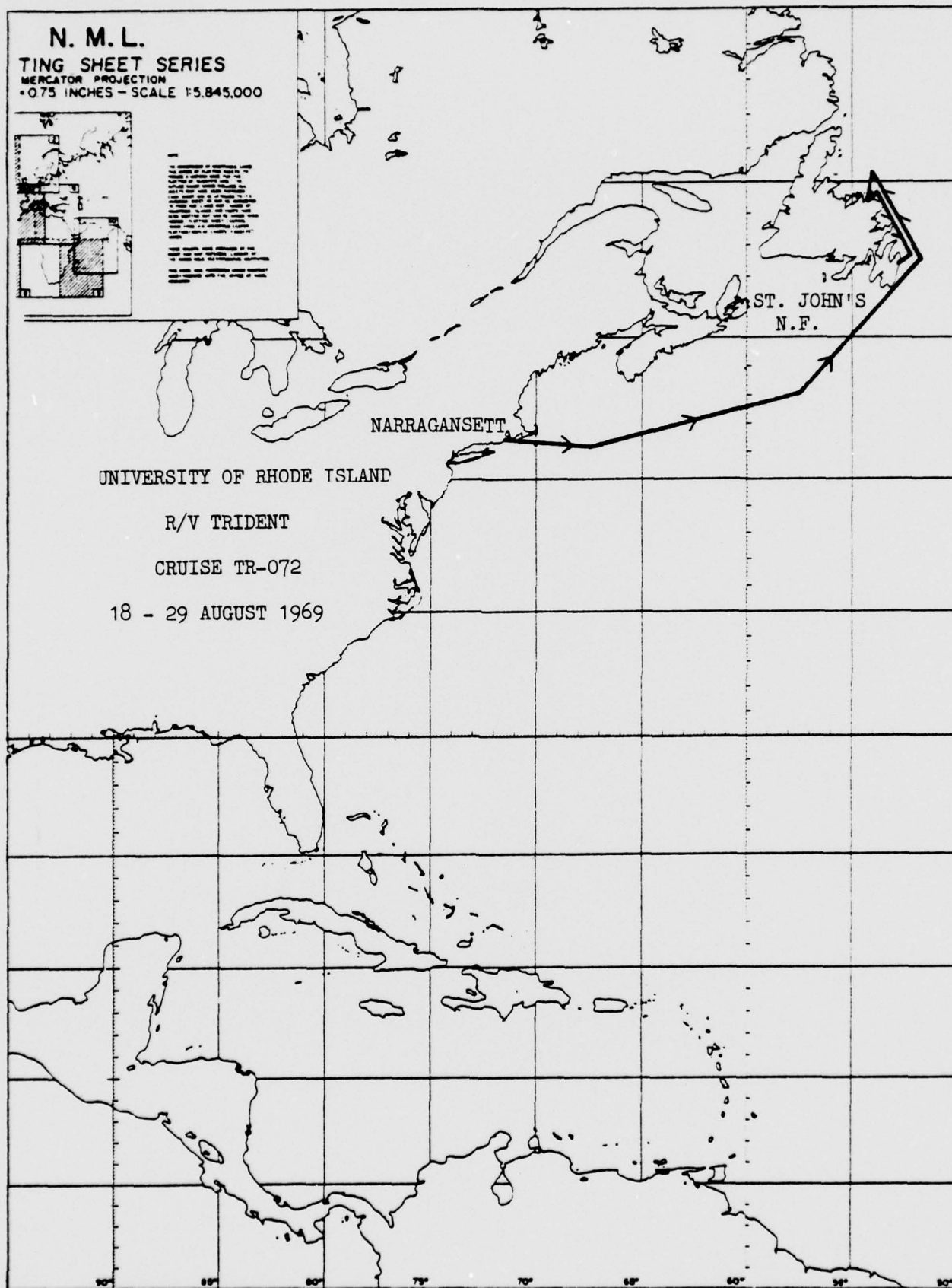
NARRAGANSETT

UNIVERSITY OF RHODE ISLAND

R/V TRIDENT

CRUISE TR-072

18 - 29 AUGUST 1969



Cruise No.: TR-073

Dates: 1 - 9 September 1969

Area of Operation: North  
Atlantic Ocean

Days at sea: 9

Funding: NSF

#### Program Description

The major purposes of this cruise were

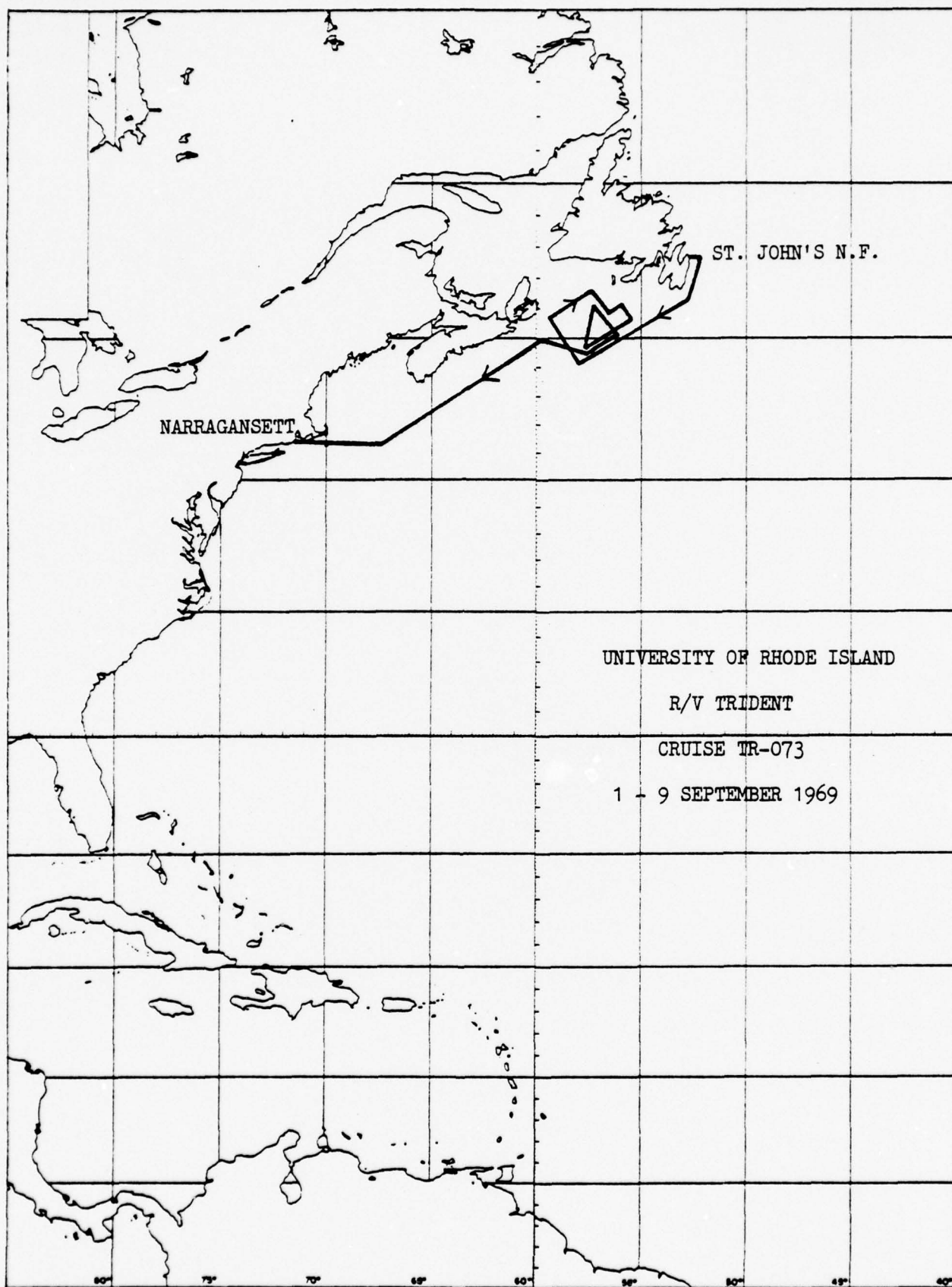
- a) to perform geological/geophysical studies of the Laurentian channel portion of the continental shelf south of Newfoundland

#### Data Collected

- 1) 750 n.m. each of bathymetric, magnetic and seismic reflection profiles were run

#### Participants

Dr. Gregory W. Webb	Chief Scientist	U. Mass.
Mr. Frederick Frodyma	Engineer	U. Mass.
Mr. Michael Page	Scientist	U. Mass.
Mr. Frank J. Raffaldi	Scientist	U. Mass.
Mr. James M. Wessel	Scientist	U. Mass.
Mr. William Hahn	Oceanographic Specialist	U.R.I.
Mr. Frank Rose	Oceanographic Specialist	U.R.I.



Cruise No.: TR-074

Dates: 5 - 6 October 1969

Area of Operation: Northwest  
Atlantic Ocean

Days at sea: 2

Funding: ONR

#### Program Description

The purposes of this cruise were

- a) to obtain a bottom grab sample
- b) to correlate offshore white light transparency ( $\alpha$ ) and  
and scalar irradiance attenuation ( $K$ )
- c) to test a timed sphere wave buoy

#### Data Collected

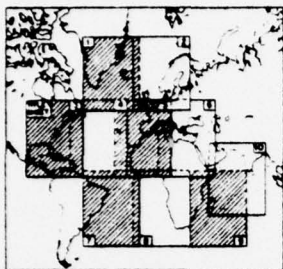
- 1) one bottom sample was obtained
- 2) readings of  $\alpha$  and  $K$  were obtained on outward and  
inward tracks
- 3) the wave buoy was tested

#### Participants

Dr. Hilbert Schenck, Jr.	Chief Scientist	U.R.I.
Mr. F. Rose	Marine Technician	U.R.I.
Mr. Robert Beach	Graduate Student	U.R.I.
Mr. Alan Blott	Graduate Student	U.R.I.
Mr. Joseph Dawson	Graduate Student	U.R.I.
Mr. Edward Doolan	Graduate Student	U.R.I.
Mr. Gregory Grimsrud	Graduate Student	U.R.I.
Mr. Gary Hyslop	Graduate Student	U.R.I.
Mr. Michael Krabach	Graduate Student	U.R.I.
Mr. Thomas Leggiere	Graduate Student	U.R.I.
Mr. John P. Levin	Graduate Student	U.R.I.
Mr. Richard Peyser	Graduate Student	U.R.I.
Mr. Jene Richart	Graduate Student	U.R.I.

3

N. M. L.  
PLOTING SHEET SERIES  
MERCATOR PROJECTION  
1° LONGITUDE = 0.75 INCHES - SCALE 1:5,845,000



1. Symbols for land, water, and other features are defined in this legend.  
2. The map is based on the best available information at the time of publication.  
3. The map is not to be used for navigation purposes.  
4. The map is not to be used for legal purposes.  
5. The map is not to be used for military purposes.  
6. The map is not to be used for political purposes.  
7. The map is not to be used for religious purposes.  
8. The map is not to be used for scientific purposes.  
9. The map is not to be used for educational purposes.  
10. The map is not to be used for commercial purposes.

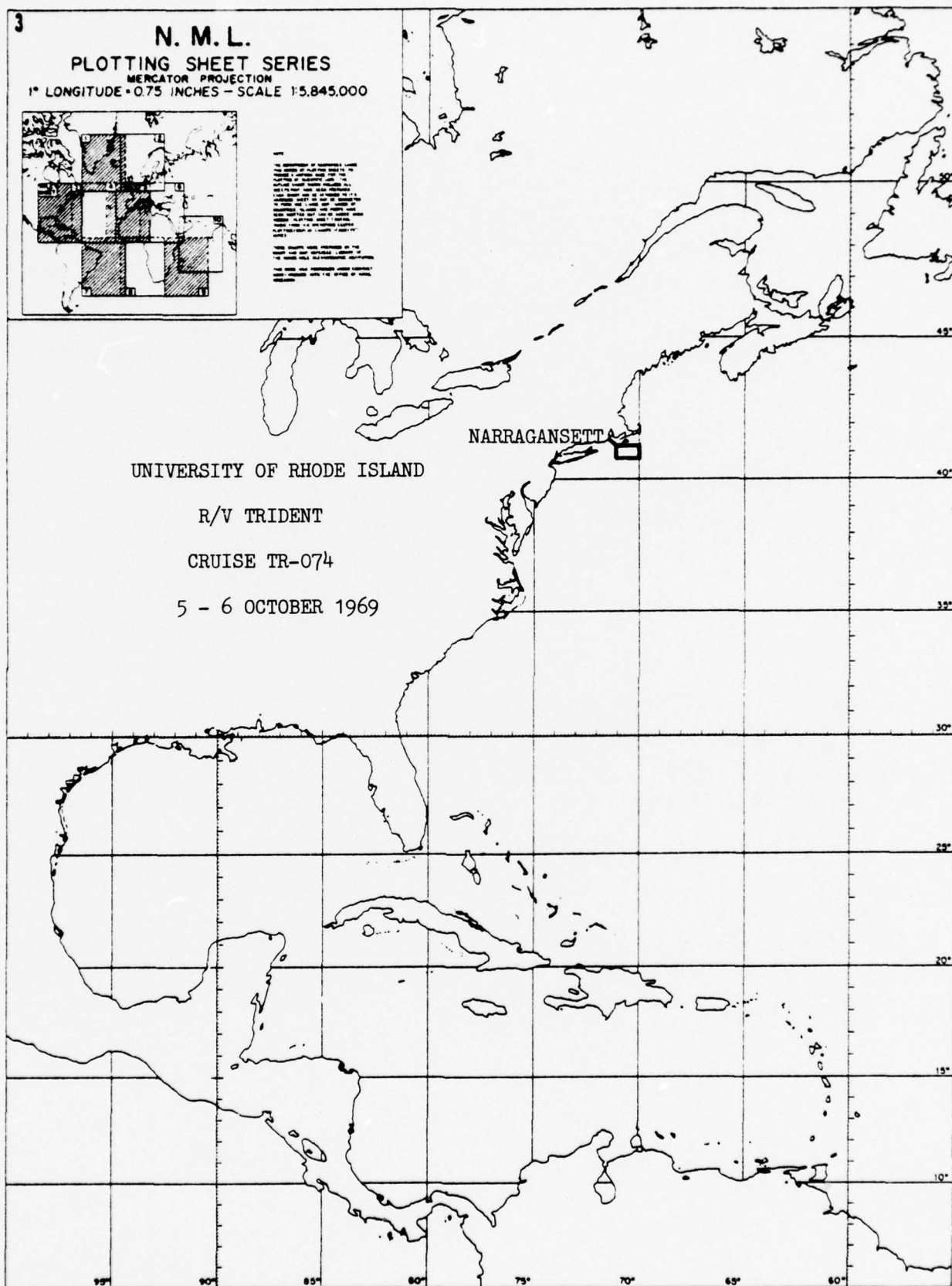
NARRAGANSETT

UNIVERSITY OF RHODE ISLAND

R/V TRIDENT

CRUISE TR-074

5 - 6 OCTOBER 1969



Cruise No.: TR-075

Dates: 9 October - 12 November 1969

Area of Operation: Northwest  
Atlantic Ocean,  
Caribbean Sea

Days at sea: 35

Funding: ONR

#### Program Description

The major programs on this cruise were

- a) to run geological/geophysical programs
- b) to set a current meter and take an associated hydrographic station and XBT
- c) to study water chemistry in the Caribbean Sea

#### Data Collected

- 1) 4,770 n.m. each of bathymetric and magnetic profiles were run
- 2) 890 n.m. of seismic reflection profiles were obtained
- 3) 15 suspended particulate matter stations were occupied
- 4) one current meter was deployed with an associated hydrographic station and XBT taken

#### Participants

Dr. Dale Krause	Co-Chief Scientist	U.R.I.
Mr. Peter Betzer	Co-Chief Scientist	U.R.I.
Dr. Wilton Sturges	Associate Professor	U.R.I.
Dr. Luis Guillermo Duran	Professor	Universidad Nacional, Bogota, Colombia
Lt. Comm. Edgar Garay	Colombian Navy	Cartagena, Colombia
Fr. Rene von Hissenhoven	Scientist	Inst. of Geophysics, Pontificia Univ. Javeriana, Bogota, Colombia
Mr. Fehti Ozpolat	Marine Geology & Geophysics	Turkey
Mr. Philip Bedard	Electronic Specialist	U.R.I.
Mr. William Hahn	Marine Technician	U.R.I.
Mr. Frank Rose	Marine Technician	U.R.I.
Mr. James Sammons	Electronic Technician	U.R.I.
Mr. Eric Christofferson	Graduate Student	U.R.I.
Mr. Gary Eggleston	Graduate Student	U.R.I.
Mr. Robert Betzer	Student	U.R.I.

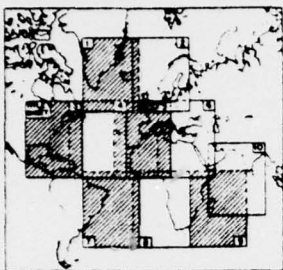
3

N. M. L.

PLOTING SHEET SERIES

MERCATOR PROJECTION

1" LONGITUDE = 0.75 INCHES - SCALE 1:5,845,000



1. All data plotted on this sheet must be plotted on the original sheet and on this plotting sheet. The original sheet must be retained for reference and for use in the event of a duplicate being required.

2. All data plotted on this sheet must be plotted on the original sheet and on this plotting sheet. The original sheet must be retained for reference and for use in the event of a duplicate being required.

3. All data plotted on this sheet must be plotted on the original sheet and on this plotting sheet. The original sheet must be retained for reference and for use in the event of a duplicate being required.

4. All data plotted on this sheet must be plotted on the original sheet and on this plotting sheet. The original sheet must be retained for reference and for use in the event of a duplicate being required.

5. All data plotted on this sheet must be plotted on the original sheet and on this plotting sheet. The original sheet must be retained for reference and for use in the event of a duplicate being required.

6. All data plotted on this sheet must be plotted on the original sheet and on this plotting sheet. The original sheet must be retained for reference and for use in the event of a duplicate being required.

7. All data plotted on this sheet must be plotted on the original sheet and on this plotting sheet. The original sheet must be retained for reference and for use in the event of a duplicate being required.

8. All data plotted on this sheet must be plotted on the original sheet and on this plotting sheet. The original sheet must be retained for reference and for use in the event of a duplicate being required.

9. All data plotted on this sheet must be plotted on the original sheet and on this plotting sheet. The original sheet must be retained for reference and for use in the event of a duplicate being required.

10. All data plotted on this sheet must be plotted on the original sheet and on this plotting sheet. The original sheet must be retained for reference and for use in the event of a duplicate being required.

NARRAGANSETT

UNIVERSITY OF RHODE ISLAND

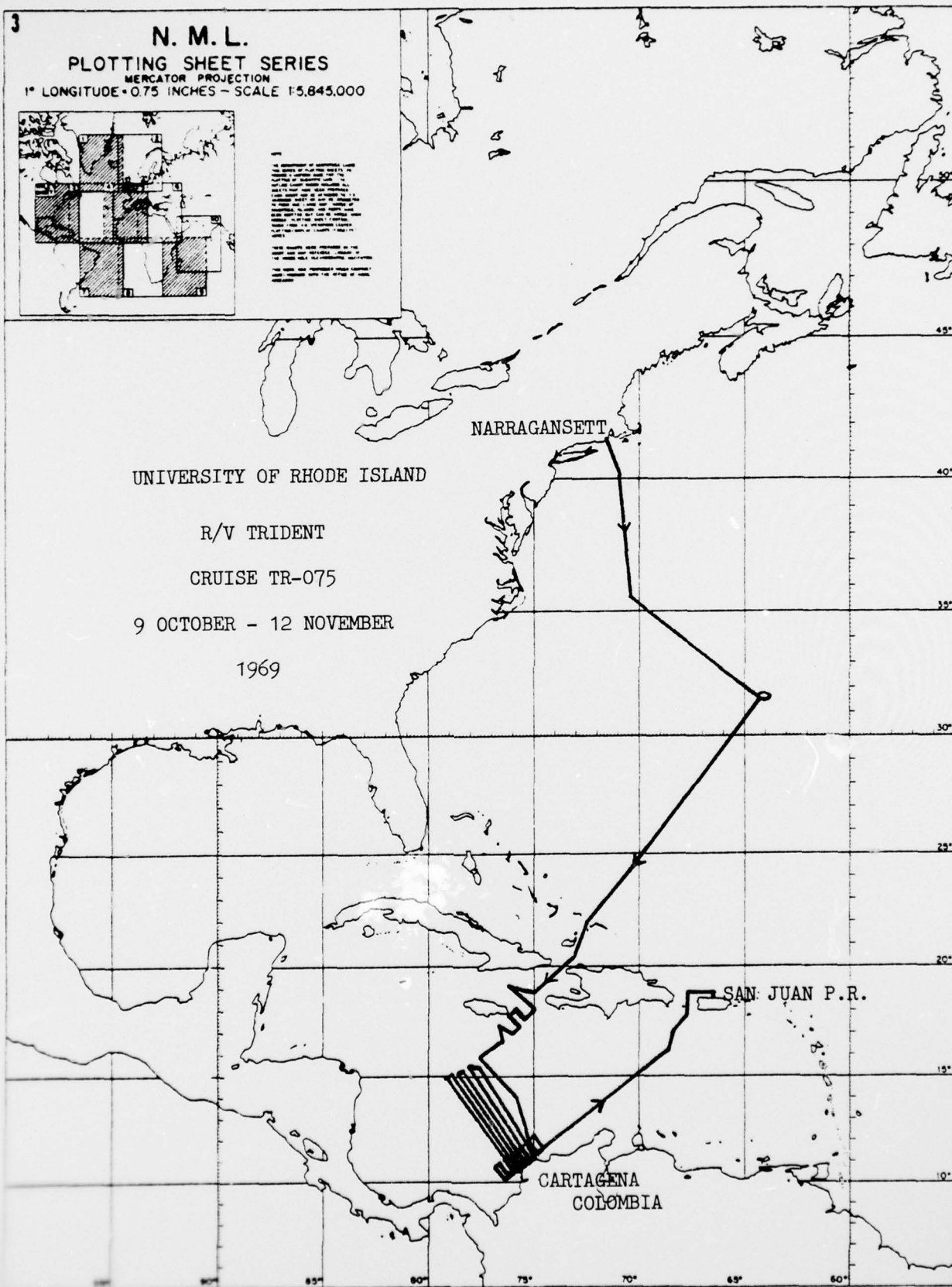
R/V TRIDENT

CRUISE TR-075

9 OCTOBER - 12 NOVEMBER

1969

SAN JUAN P.R.

CARTAGENA  
COLOMBIA

Cruise No.: TR-076

Dates: 15 November - 3 December 1969

Area of Operation: Northwest  
Atlantic Ocean

Days at sea: 17

Funding: ONR

#### Program Description

The major programs on this cruise were

- a) to continue the Ocean Acre program by taking biological samples in the prescribed area
- b) to carry out a plankton sampling program with associated chemical studies

#### Data Collected

- 1) One trawl was obtained
- 2) Two net tows were made
- 3) Two hydrostations were occupied
- 4) One XBT was taken

#### Participants

Dr. Theodore Napora	Chief Scientist	U.R.I.
Dr. Elijah Swift	Asst. Professor	U.R.I.
Mr. Philip Bedard	Electronic Engineer	U.R.I.
Mr. Ralph Austin	Scientist	NUSL
Mr. George Battesta	Scientist	NUSL
Mr. Gene Bissett	Scientist	NUSL
Mr. Albert Brooks	Scientist	NUSL
Mr. Charles Brown	Scientist	NUSL
Mr. Stanley Cobb	Scientist	Smithsonian Inst.
Mr. David Guiliano	Scientist	NUSL
Mr. Joseph Majewski	Scientist	NUSL
Mr. William Hahn	Marine Technician	U.R.I.
Mr. James Sammons	Electronic Technician	U.R.I.
Mr. Richard Beider	Graduate Student	U.R.I.
Mr. George Bond	Graduate Student	U.R.I.
Mr. Henry Donaldson	Graduate Student	U.R.I.
Mr. Gerard Miller	Graduate Student	U.R.I.
Mr. Marc Stuart	Graduate Student	U.R.I.

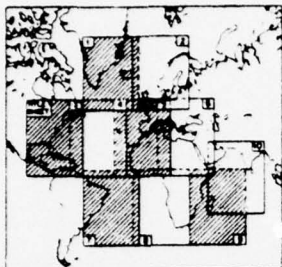
3

N. M. L.

PLOTING SHEET SERIES

MERCATOR PROJECTION

1" LONGITUDE = 0.75 INCHES - SCALE 1:5,845,000



1. SURVEY AREA  
2. SURVEY AREA  
3. SURVEY AREA  
4. SURVEY AREA  
5. SURVEY AREA  
6. SURVEY AREA  
7. SURVEY AREA  
8. SURVEY AREA  
9. SURVEY AREA  
10. SURVEY AREA  
11. SURVEY AREA  
12. SURVEY AREA  
13. SURVEY AREA  
14. SURVEY AREA  
15. SURVEY AREA  
16. SURVEY AREA  
17. SURVEY AREA  
18. SURVEY AREA  
19. SURVEY AREA  
20. SURVEY AREA  
21. SURVEY AREA  
22. SURVEY AREA  
23. SURVEY AREA  
24. SURVEY AREA  
25. SURVEY AREA  
26. SURVEY AREA  
27. SURVEY AREA  
28. SURVEY AREA  
29. SURVEY AREA  
30. SURVEY AREA  
31. SURVEY AREA  
32. SURVEY AREA  
33. SURVEY AREA  
34. SURVEY AREA  
35. SURVEY AREA  
36. SURVEY AREA  
37. SURVEY AREA  
38. SURVEY AREA  
39. SURVEY AREA  
40. SURVEY AREA  
41. SURVEY AREA  
42. SURVEY AREA  
43. SURVEY AREA  
44. SURVEY AREA  
45. SURVEY AREA  
46. SURVEY AREA  
47. SURVEY AREA  
48. SURVEY AREA  
49. SURVEY AREA  
50. SURVEY AREA  
51. SURVEY AREA  
52. SURVEY AREA  
53. SURVEY AREA  
54. SURVEY AREA  
55. SURVEY AREA  
56. SURVEY AREA  
57. SURVEY AREA  
58. SURVEY AREA  
59. SURVEY AREA  
60. SURVEY AREA  
61. SURVEY AREA  
62. SURVEY AREA  
63. SURVEY AREA  
64. SURVEY AREA  
65. SURVEY AREA  
66. SURVEY AREA  
67. SURVEY AREA  
68. SURVEY AREA  
69. SURVEY AREA  
70. SURVEY AREA  
71. SURVEY AREA  
72. SURVEY AREA  
73. SURVEY AREA  
74. SURVEY AREA  
75. SURVEY AREA  
76. SURVEY AREA  
77. SURVEY AREA  
78. SURVEY AREA  
79. SURVEY AREA  
80. SURVEY AREA  
81. SURVEY AREA  
82. SURVEY AREA  
83. SURVEY AREA  
84. SURVEY AREA  
85. SURVEY AREA  
86. SURVEY AREA  
87. SURVEY AREA  
88. SURVEY AREA  
89. SURVEY AREA  
90. SURVEY AREA  
91. SURVEY AREA  
92. SURVEY AREA  
93. SURVEY AREA  
94. SURVEY AREA  
95. SURVEY AREA  
96. SURVEY AREA  
97. SURVEY AREA  
98. SURVEY AREA  
99. SURVEY AREA  
100. SURVEY AREA

NARRAGANSETT

UNIVERSITY OF RHODE ISLAND

R/V TRIDENT

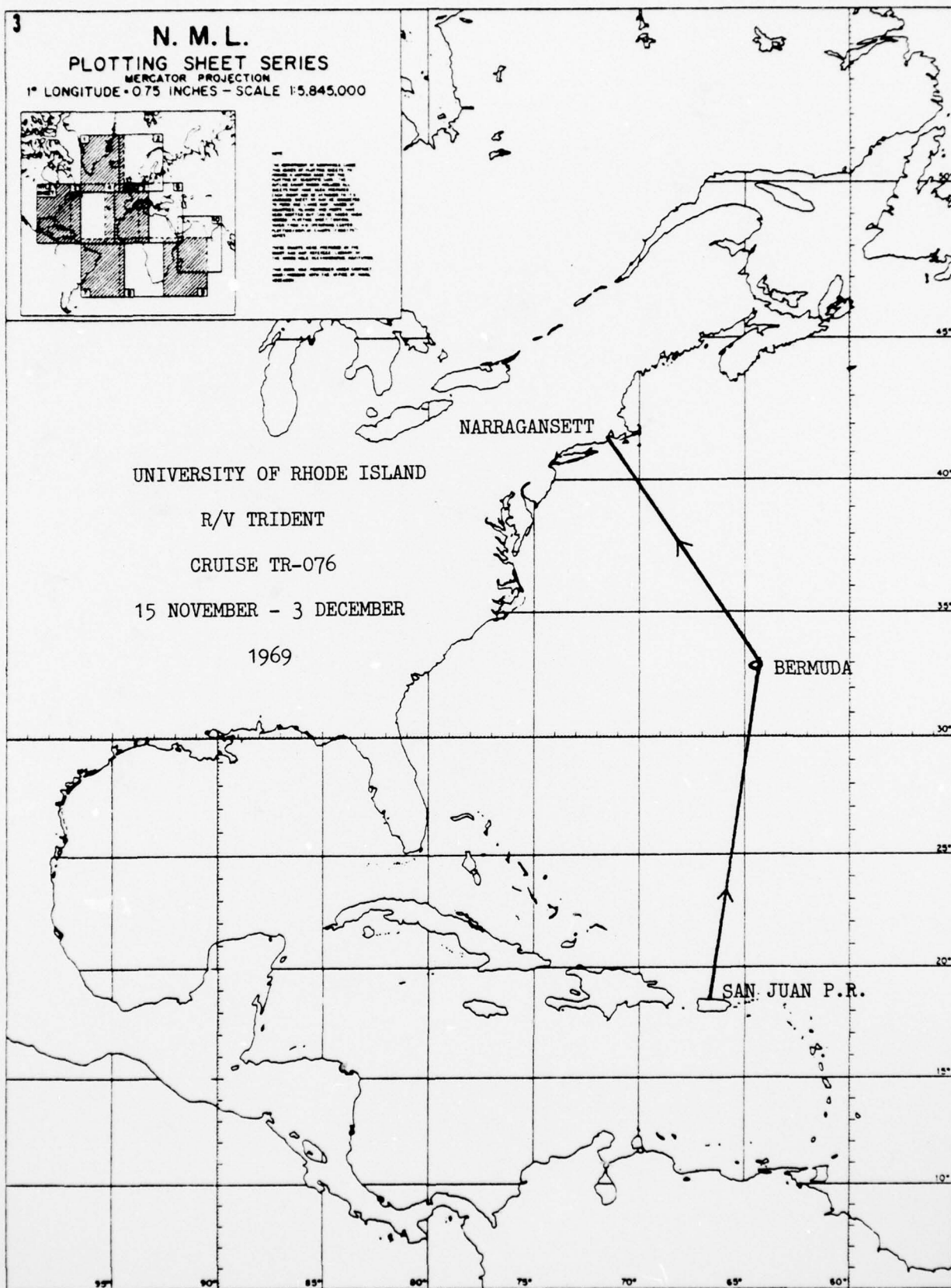
CRUISE TR-076

15 NOVEMBER - 3 DECEMBER

1969

BERMUDA

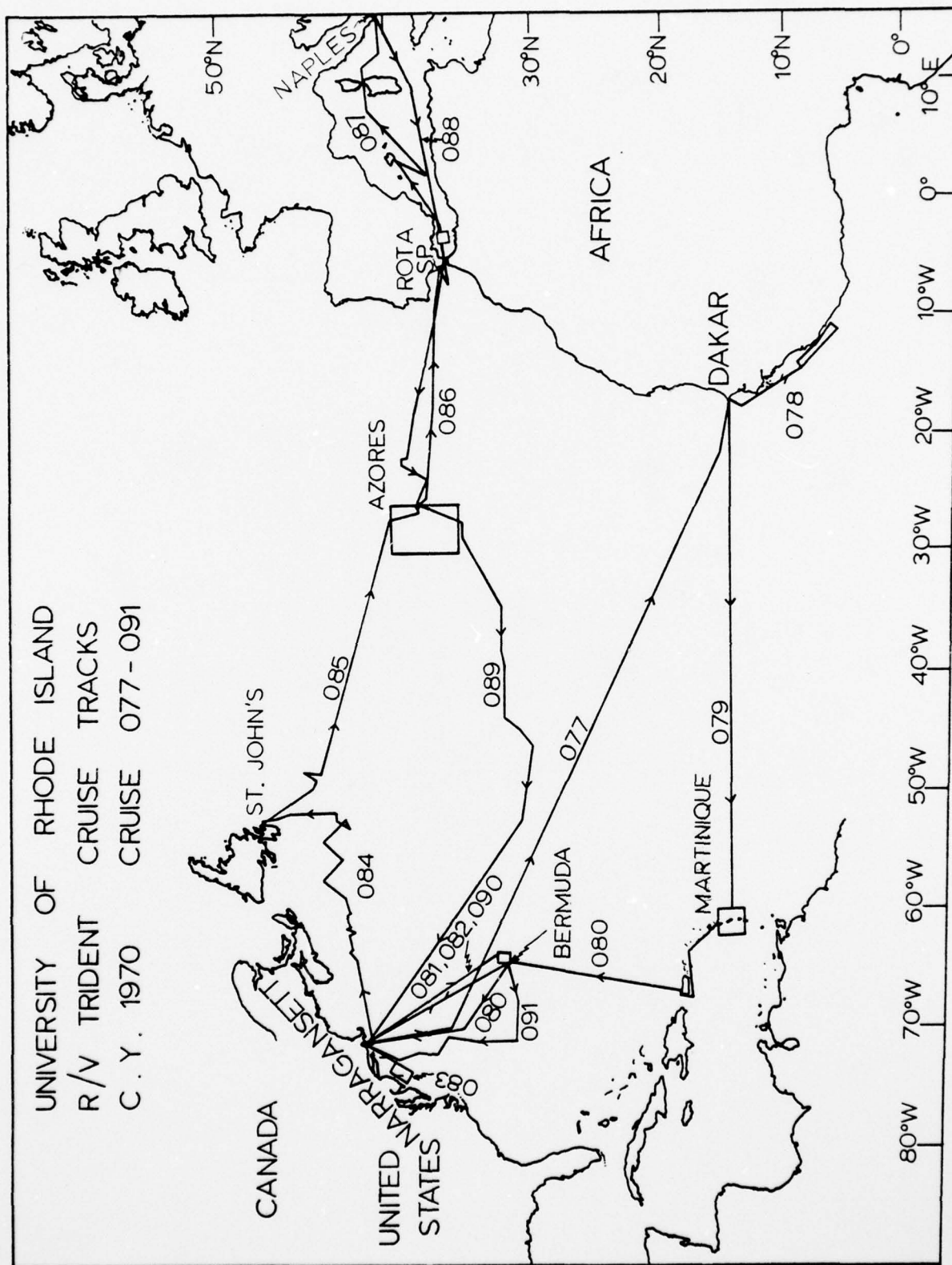
SAN JUAN P.R.



R/V TRIDENT Cruises - CY 1970

Cruise No.	Dates	Days at Sea	Area of Operation	Chief Scientist/ Affiliation*
077	3-26 January	23	North Atlantic	Swift, Sturges
078	31 Jan. - 26 Feb.	26	NE Atlantic	McMaster
079	1-22 Mar.	21	N. Atlantic Caribbean	Schilling
080	25 Mar. - 18 Apr.	24	NW Atlantic Caribbean	Winn
081	2-14 May	13	NW Atlantic	Napora
082	17-25 May	9	NW Atlantic	Swift
083	27 May - 10 June	15	NW Atlantic	McClennen
084	29 June - 8 July	10	North Atlantic	Webb/U. Mass.
085	10-21 July	12	North Atlantic	Kester
086	23 July - 10 Aug.	18	North Atlantic	Krause, Schilling
087	14 Aug. - 10 Sept.	27	Mediterranean	Gibbs/Smithsonian
088	18 Sept. - 2 Oct.	15	Mediterranean North Atlantic	Swift
089	5 Oct. - 10 Nov.	34	North Atlantic	Schilling, Krause
090	27 Nov. - 9 Dec.	13	NW Atlantic	Napora
091	11-19 Dec.	9	NW Atlantic	Pilson

\*GSO/URI unless otherwise noted



Cruise No.: TR-077

Dates: 3 - 26 January 1970

Area of Operation: Northwest and  
Northeast Atlantic  
Ocean

Days at sea: 23

Funding: ONR

#### Program Description

The major objectives of this cruise were:

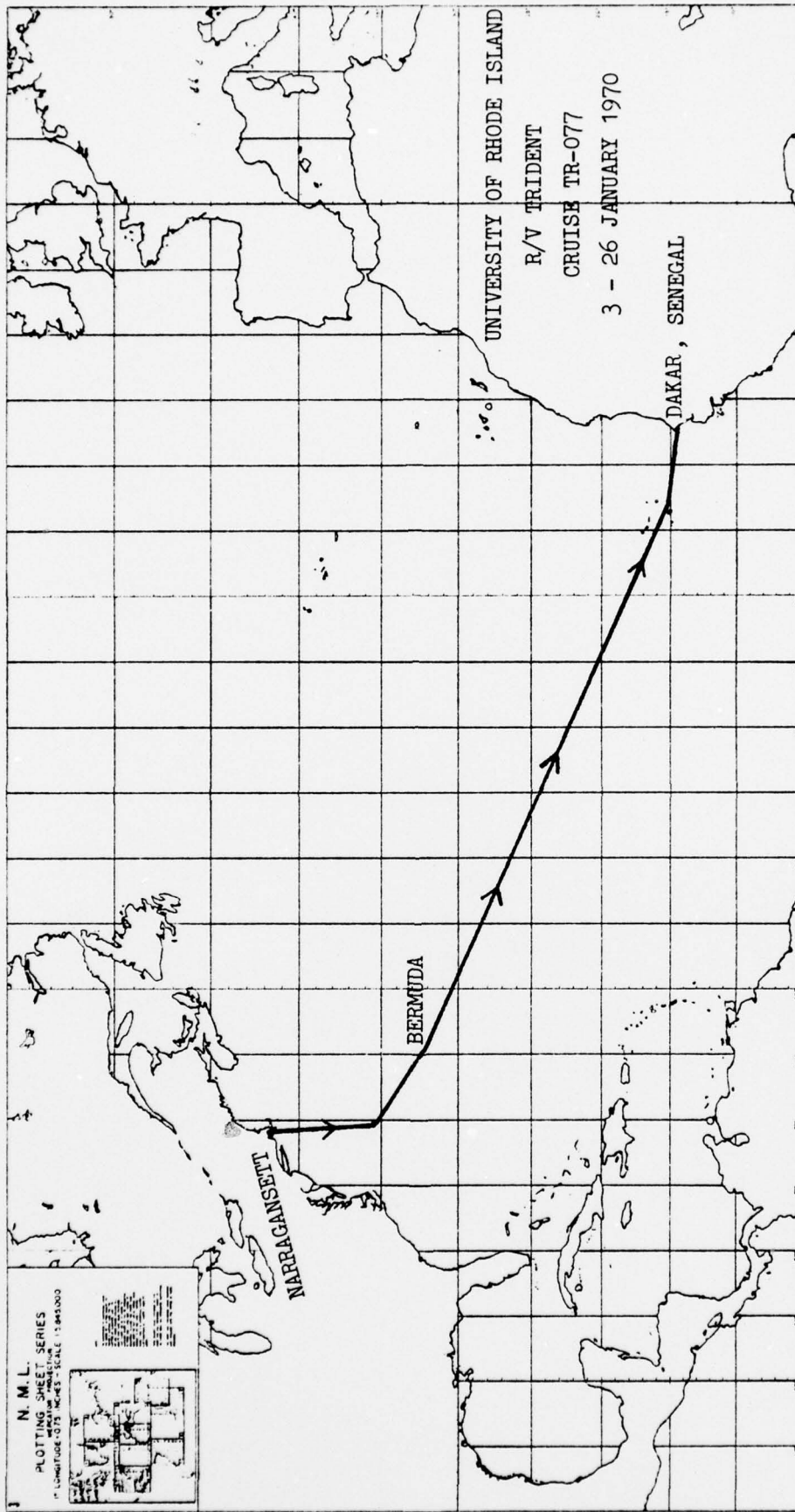
- a) to collect phytoplankton samples and study the associated water column
- b) to deploy and recover current meters

#### Data Collected

- 1) 11 plankton pumping stations were occupied
- 2) 11 hydrostations made
- 3) 12 XBTs taken
- 4) one current meter was deployed and one recovered
- 5) continuous surface temperature recordings were made

#### Participants

Dr. Elijah Swift	Co-Chief Scientist	U.R.I.
Dr. Wilton Sturges	Co-Chief Scientist	U.R.I.
Mr. Philip Bedard	Electronics Engineer	U.R.I.
Mr. R. E. Smith	Oceanographic Specialist	U.R.I.
Mr. T. Kennard	Marine Technician	U.R.I.
Mr. F. Rose	Marine Technician	U.R.I.
Mr. H. Garabedian	Graduate Student	U. Mass.
Mr. B. Gardner	Graduate Student	Johns Hopkins
Mr. R. Weisberg	Graduate Student	U.R.I.
Mr. J. Sammons	Electronics Technician	U.R.I.



Cruise No.: TR-078

Dates: 31 January - 26 February 1970

Area of Operation: Northeast  
Atlantic Ocean

Days at sea: 26

Funding: ONR

#### Program Description

The primary objectives of this cruise were:

- a) to determine the bathymetry of the continental shelf and slope off Sierra Leone and Liberia
- b) to define the structural framework of the same area

#### Data Collected

- 1) 3,360 n.m. each of bathymetry and magnetic profiles were run
- 2) 900 n.m. of seismic reflection profiles were taken
- 3) four grabs were taken for the University of Nigeria

#### Participants

Dr. R. L. McMaster  
Mr. A. Ashraf  
Mr. A. B. Buddington  
Mr. T. C. Kennard  
Mr. F. Rose  
Mr. J. C. Behrendt  
Mr. B. Pass  
Mr. C. S. Wotorson

Chief Scientist  
Research Assistant  
Research Assistant  
Oceanographic Specialist  
Oceanographic Specialist  
Scientist  
Physicist  
Scientist

U.R.I.  
U.R.I.  
U.R.I.  
U.R.I.  
U.R.I.  
USGS/Monrovia  
Univ. of Nigeria  
USGS/Monrovia

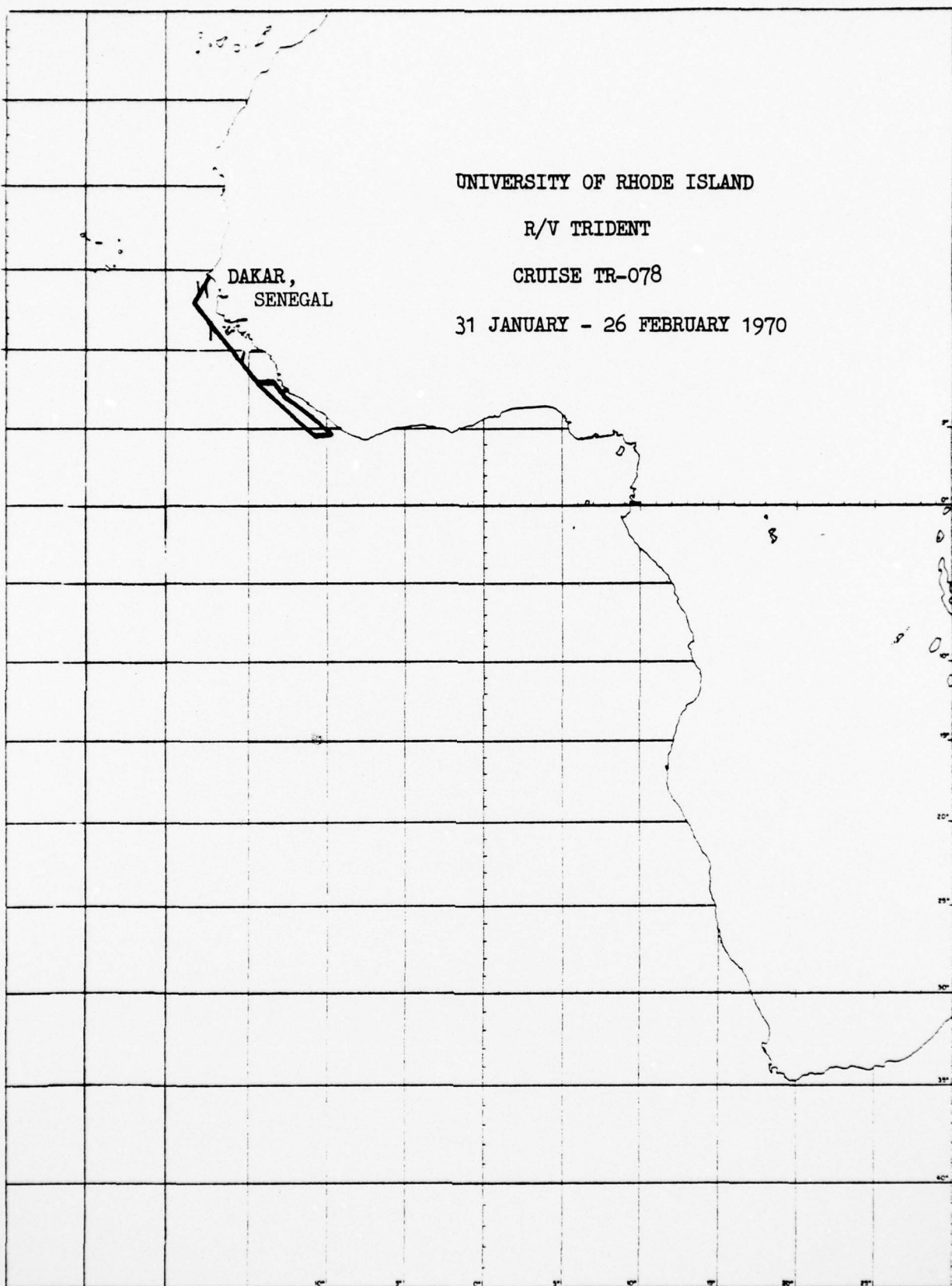
UNIVERSITY OF RHODE ISLAND

R/V TRIDENT

CRUISE TR-078

31 JANUARY - 26 FEBRUARY 1970

DAKAR,  
SENEGAL



Cruise No.: TR-079

Dates: 1 - 22 March 1970

Area of Operation: North Atlantic  
Ocean and  
Caribbean Sea

Days at sea: 21

Funding: ONR

### Program Description

The major purpose of this cruise was:

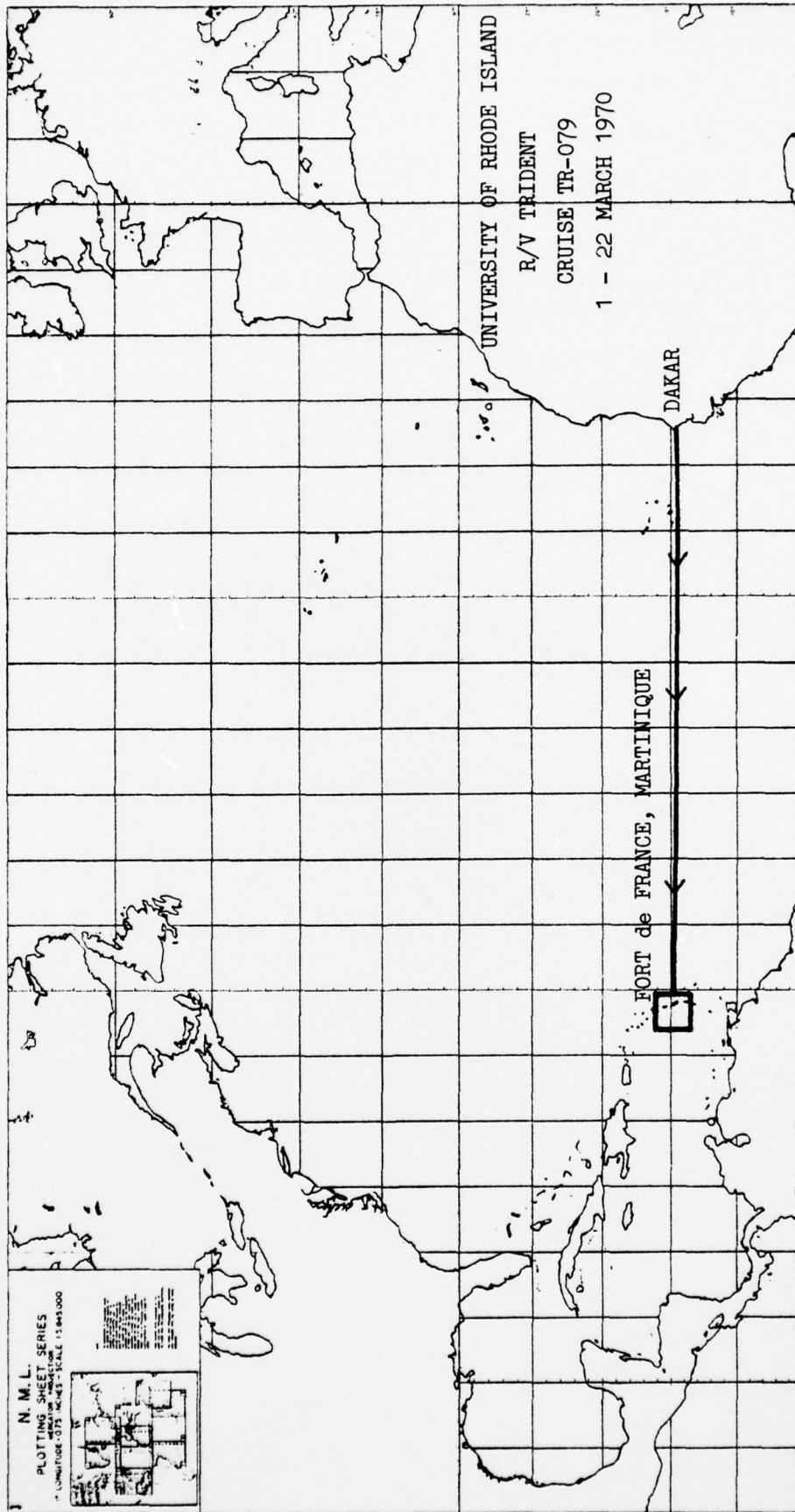
- a) to dredge and take geophysical measurements along a profile across the Lesser Antilles Island Arc

### Data Collected

- 1) 3,000 n.m. each of bathymetry and magnetic profiles were run
- 2) 320 n.m. of seismic reflection profiles were taken
- 3) 12 dredges were successful
- 4) one camera station was occupied

### Participants

Dr. Jean-Guy Schilling	Chief Scientist	U.R.I.
Dr. L. K. Fink	Geologist	Univ. of Maine
Dr. Yoshio Oji	Geologist	Fukuoka Univ.
Dr. John Robinson	Professor	U.R.I.
Mr. Pierre-Marie Thibaut	Scientist	Bur. Geologic Research & Mines, Martinique
Mr. Thomas Johnston	Graduate Student	U.R.I.
Ms. Ann Gall	Biology Student	U.R.I.
Ms. Helene Robinson	Student	U.R.I.
Ms. Elizabeth Sekator	Oceanographic Technician	U.R.I.
Ms. Diane Wolf	Geology Student	U.R.I.
Mr. Timothy Kennard	Marine Technician	U.R.I.
Mr. Frank Rose	Marine Technician	U.R.I.



Cruise No.: TR-080

Dates: 25 March - 18 April 1970

Area of Operation: Northwest  
Atlantic Ocean  
and Caribbean Sea

Days at Sea: 24

Funding: ONR

#### Program Description

The major programs on this cruise were:

- a) to study the movements, sound production and behavior of whales and dolphins
- b) to maintain a daylight whale and wildlife watch
- c) to collect eels using long-line techniques
- d) to conduct swordfish and shark studies for the U. S. Bureau of Sports Fisheries (USBSF)
- e) to recover a current meter array and deploy one
- f) to run a short seismic reflection profile

#### Data Collected

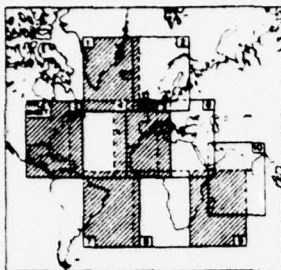
- 1) 104 bioacoustic stations were occupied
- 2) four long-line fishing stations were conducted
- 3) one current meter was recovered and one deployed at 35°45'N, 70°30'W
- 4) 18 n.m. of seismic reflection profiles were taken
- 5) 14 XBTs were taken
- 6) continue sea surface temperatures were run

#### Participants

Dr. Howard E. Winn	Chief Scientist	U.R.I.
Dr. Joseph Marshall	Visiting Scientist	Univ. W. Virginia
Mr. Paul Perkins	Oceanographic Specialist	U.R.I.
Mr. Pierce Fenhagen	Oceanographic Specialist	U.R.I.
Mr. Raymond Kenney	Research Assistant	U.R.I.
Ms. Lois Knight	Biological Technician	U.R.I.
Mr. Harold Pratt	Scientist	USBSF&W
Mr. William Hahn	Marine Technician	U.R.I.
Ms. Rosalind Cohen	Graduate Student	U.R.I.
Mr. Richard Edel	Graduate Student	U.R.I.
Mr. David Morgan	Graduate Student	U.R.I.
Mr. John Mason	Graduate Student	U.R.I.

3

N. M. L.  
PLOTING SHEET SERIES  
MERCATOR PROJECTION  
1" LONGITUDE = 0.75 INCHES - SCALE 1:5,845,000



1. This plotting sheet is part of a series of sheets covering the North Atlantic Ocean. The sheets are numbered 1 through 10, and are arranged in a grid. The sheet number is printed in the top left corner of each sheet.

2. The scale of this sheet is 1 inch = 0.75 degrees of longitude. The scale is constant throughout the sheet.

3. The projection of this sheet is Mercator. The projection is constant throughout the sheet.

4. The datum of this sheet is the International Datum of 1924. The datum is constant throughout the sheet.

5. The units of this sheet are degrees, minutes, and seconds. The units are constant throughout the sheet.

6. The symbols of this sheet are the same as the symbols of the other sheets in the series. The symbols are constant throughout the sheet.

7. The lines of this sheet are the same as the lines of the other sheets in the series. The lines are constant throughout the sheet.

8. The colors of this sheet are the same as the colors of the other sheets in the series. The colors are constant throughout the sheet.

9. The text of this sheet is the same as the text of the other sheets in the series. The text is constant throughout the sheet.

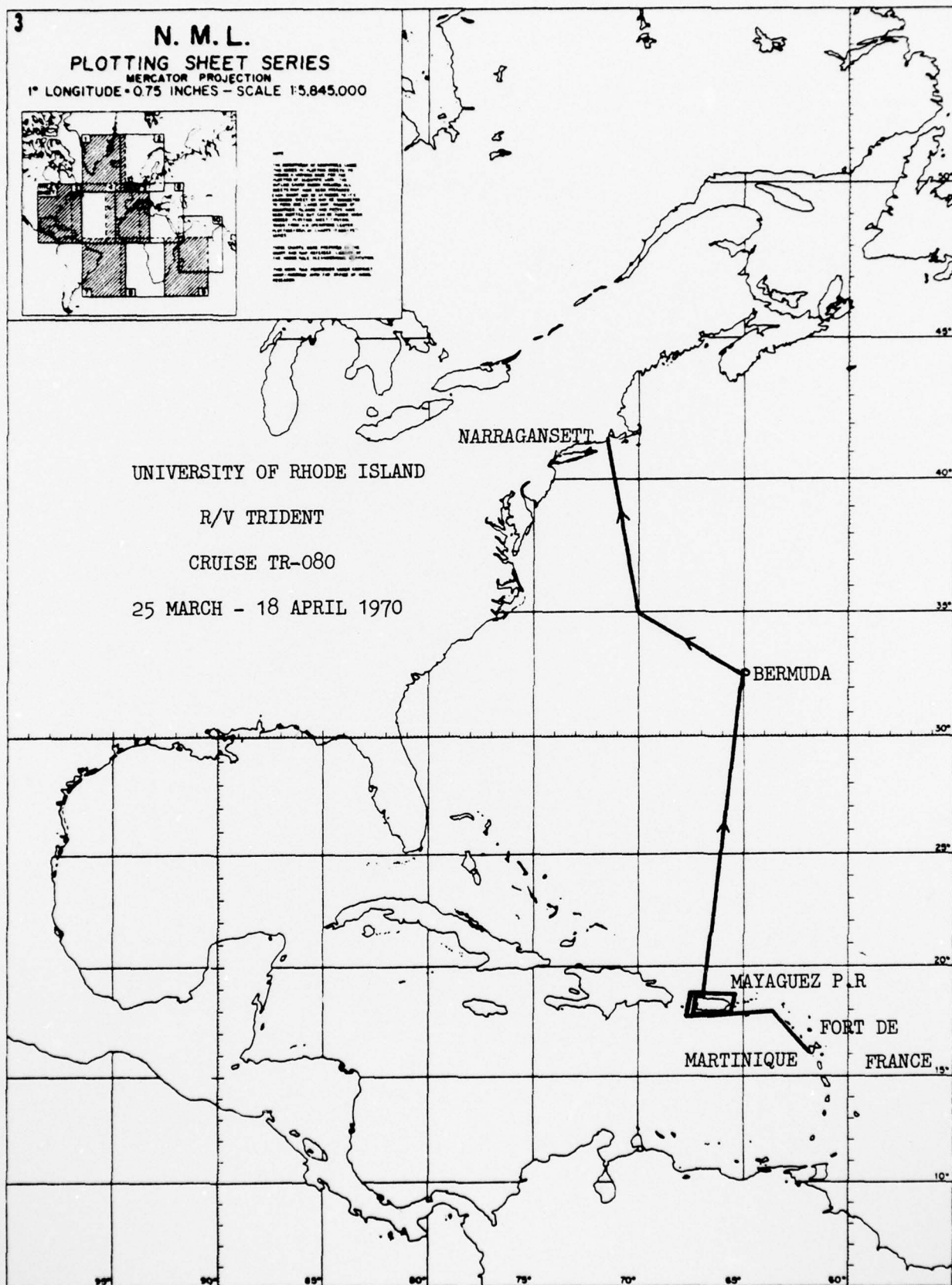
10. The map of this sheet is the same as the map of the other sheets in the series. The map is constant throughout the sheet.

UNIVERSITY OF RHODE ISLAND

R/V TRIDENT

CRUISE TR-080

25 MARCH - 18 APRIL 1970



Cruise No.: TR-081

Dates: 2 - 14 May 1970

Area of Operation: Northwest  
Atlantic Ocean

Days at sea: 13

Funding: NSF

#### Program Description

This was a continuation of the Ocean Acre program whose main objectives were:

- a) to run trawl stations in the area and study the biological community
- b) to sample phytoplankton and sargassum weed

#### Data Collected

- 1) 14 trawl stations were run
- 2) (b) above was accomplished

#### Participants

Dr. Theodore Napora	Chief Scientist	U.R.I.
Dr. Theodore Smayda	Professor	U.R.I.
Dr. Elijah Swift	Assistant Professor	U.R.I.
Mr. Timothy Kennard	Technician	U.R.I.
Mr. Henry Donaldson	Graduate Student	U.R.I.
Mr. Gerard Miller	Graduate Student	U.R.I.
Mr. George Tremblay	Biochemistry Student	U.R.I.

AD-A047 655

RHODE ISLAND UNIV KINGSTON GRADUATE SCHOOL OF OCEANO--ETC F/G 13/10  
R/V TRIDENT CRUISE SUMMARIES CY 1962 THROUGH CY 1971.(U)  
NOV 77 E M WILLIAMS

N00014-76-C-0226

UNCLASSIFIED

URI/GSO-REF-77-4

NL

3 OF 3  
AD-A047 655

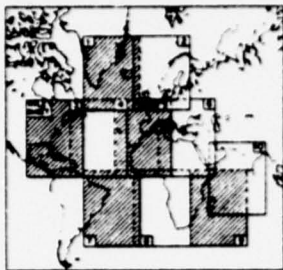


END  
DATE  
FILMED

1 - 78

DDC

1° LONGITUDE = 0.75 INCHES - SCALE 1:5,845,000

[illegible]

NARRAGANSETT

UNIVERSITY OF RHODE ISLAND

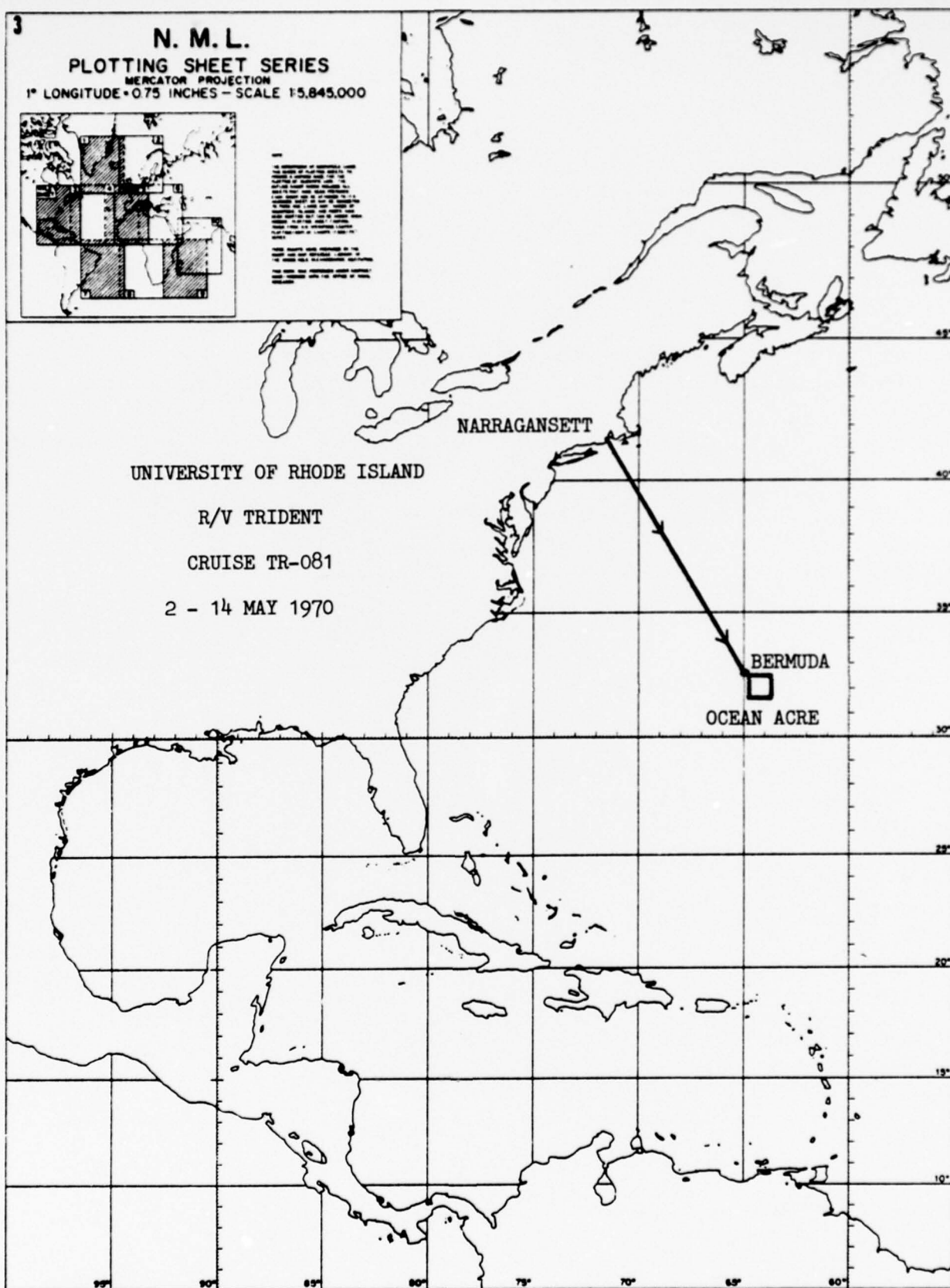
R/V TRIDENT

CRUISE TR-081

2 - 14 MAY 1970

BERMUDA

OCEAN ACRE



Cruise No.: TR-082

Dates: 17 - 25 May 1970

Area of Operation: Northwest  
Atlantic Ocean

Days at sea: 9

Funding: NSF

#### Program Description

Major programs studied were:

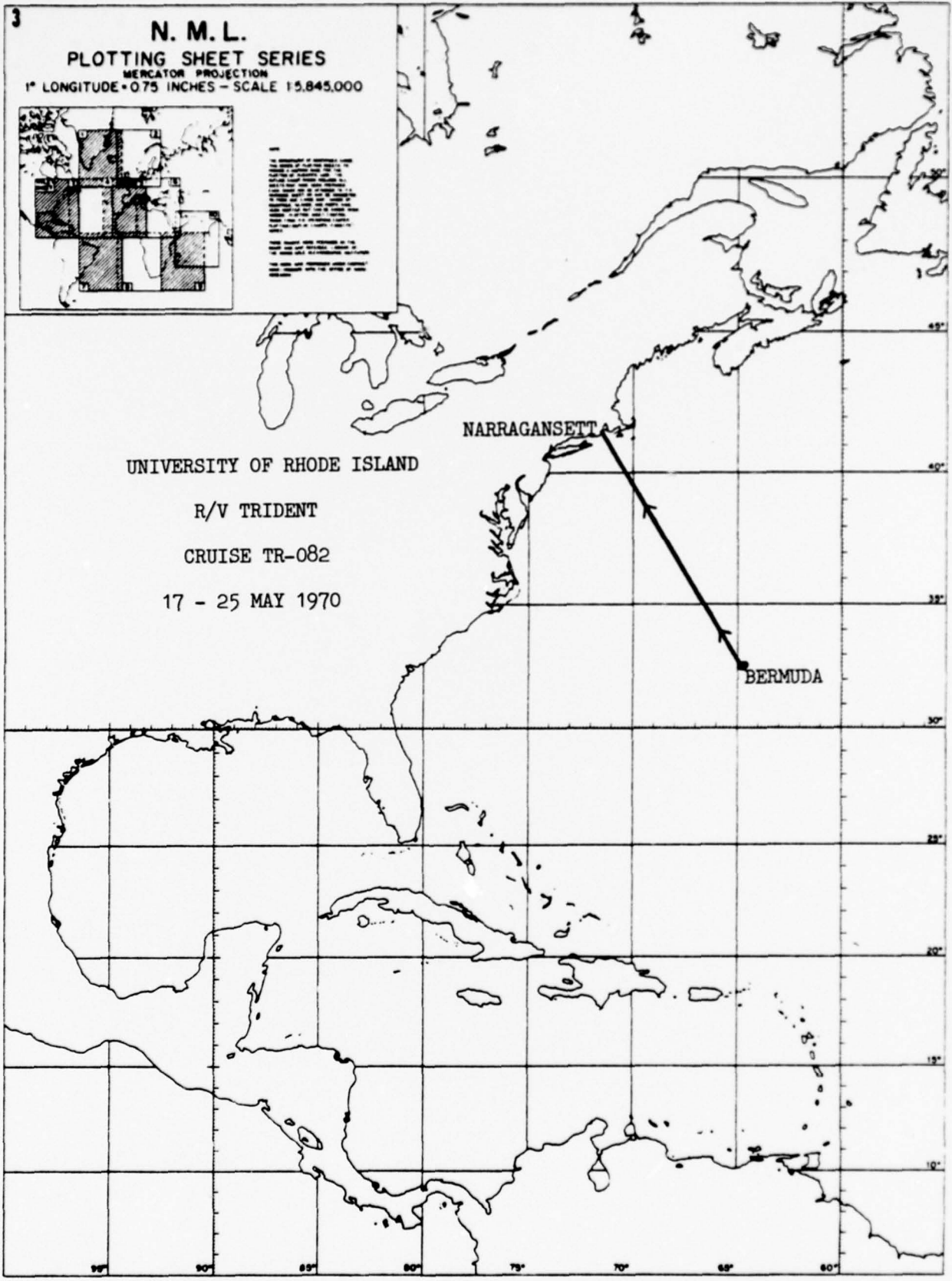
- a) vertical distribution of phytoplankton using nets and pumping stations; the associated water column was also sampled
- b) sargassum weed community was studied
- c) equipment tests were run

#### Data Collected

- 1) nine phytoplankton vertical net tows were made
- 2) four hydrographic stations were taken
- 3) five XBTs were run
- 4) sargassum weed was studied
- 5) underway air sampling and water pumping systems were tested

#### Participants

Dr. E. Swift	Chief Scientist	U.R.I.
Dr. T. J. Smayda	Professor	U.R.I.
Mr. J. Moyers	Research Associate	U.R.I.
Mr. T. Kennard	Oceanographic Specialist	U.R.I.
Ms. M. L. Bannister	Graduate Student	U.R.I.
Mr. C. J. Fontaineau	Graduate Student	U.R.I.
Mr. B. Thorne	Graduate Student	U.R.I.



Cruise No.: TR-083

Dates: 27 May - 10 June 1970

Area of Operation: Northwest  
Atlantic Ocean

Days at sea: 15

Funding: ONR

#### Program Description

The major objectives of this cruise were:

- a) to study the bathymetry, seismic reflection and the bottom currents on the continental shelf and slope off the New Jersey coast
- b) to determine the structure and the environment of the near bottom sediments in the same area

#### Data Collected

- 1) 2,500 n.m. of bathymetry profiles were run
- 2) 440 n.m. of seismic reflection profiles were taken
- 3) 17 grabs were taken
- 4) eight cores were taken
- 5) 32 bottom camera stations were occupied
- 6) four XBTs were run
- 7) three current meters were deployed and two recovered

#### Participants

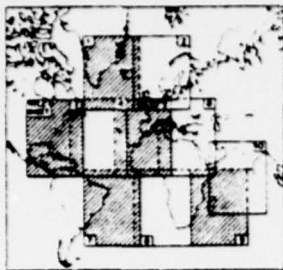
Mr. C. E. McClennen	Chief Scientist	U.R.I.
Dr. R. L. McMaster	Professor	U.R.I.
Mr. J. J. Fisher	Geologist	U.R.I.
Mr. A. W. Prichard	Electrical Engineer	Raytheon Corp.
Mr. A. B. Buddington	Marine Technician	U.R.I.
Mr. W. Hahn	Marine Technician	U.R.I.
Mr. F. Rose	Marine Technician	U.R.I.
Mr. J. Sammons	Oceanographic Specialist	U.R.I.
Mr. W. Davis	Graduate Student	U.R.I.
Mr. C. Ciccirella	Student	Northeastern Univ.
Mr. R. England	Student	Northeastern Univ.
Mr. P. Pizzaruso	Student	Northeastern Univ.
Mr. T. Townsend	Student	Northeastern Univ.
Mr. J. Jackerson	Student	Case Western Reserve

3

N. M. L.

PLOT SHEET SERIES

1° LONGITUDE PROJECTION MILES - SCALE 1:5,845,000



1. Name of the vessel  
2. Name of the commanding officer  
3. Name of the observer  
4. Name of the recorder  
5. Name of the navigator  
6. Name of the deck officer  
7. Name of the deck crew  
8. Name of the engine room crew  
9. Name of the medical officer  
10. Name of the medical crew  
11. Name of the radio officer  
12. Name of the radio crew  
13. Name of the gun crew  
14. Name of the gun crew  
15. Name of the gun crew  
16. Name of the gun crew  
17. Name of the gun crew  
18. Name of the gun crew  
19. Name of the gun crew  
20. Name of the gun crew  
21. Name of the gun crew  
22. Name of the gun crew  
23. Name of the gun crew  
24. Name of the gun crew  
25. Name of the gun crew  
26. Name of the gun crew  
27. Name of the gun crew  
28. Name of the gun crew  
29. Name of the gun crew  
30. Name of the gun crew  
31. Name of the gun crew  
32. Name of the gun crew  
33. Name of the gun crew  
34. Name of the gun crew  
35. Name of the gun crew  
36. Name of the gun crew  
37. Name of the gun crew  
38. Name of the gun crew  
39. Name of the gun crew  
40. Name of the gun crew  
41. Name of the gun crew  
42. Name of the gun crew  
43. Name of the gun crew  
44. Name of the gun crew  
45. Name of the gun crew  
46. Name of the gun crew  
47. Name of the gun crew  
48. Name of the gun crew  
49. Name of the gun crew  
50. Name of the gun crew  
51. Name of the gun crew  
52. Name of the gun crew  
53. Name of the gun crew  
54. Name of the gun crew  
55. Name of the gun crew  
56. Name of the gun crew  
57. Name of the gun crew  
58. Name of the gun crew  
59. Name of the gun crew  
60. Name of the gun crew  
61. Name of the gun crew  
62. Name of the gun crew  
63. Name of the gun crew  
64. Name of the gun crew  
65. Name of the gun crew  
66. Name of the gun crew  
67. Name of the gun crew  
68. Name of the gun crew  
69. Name of the gun crew  
70. Name of the gun crew  
71. Name of the gun crew  
72. Name of the gun crew  
73. Name of the gun crew  
74. Name of the gun crew  
75. Name of the gun crew  
76. Name of the gun crew  
77. Name of the gun crew  
78. Name of the gun crew  
79. Name of the gun crew  
80. Name of the gun crew  
81. Name of the gun crew  
82. Name of the gun crew  
83. Name of the gun crew  
84. Name of the gun crew  
85. Name of the gun crew  
86. Name of the gun crew  
87. Name of the gun crew  
88. Name of the gun crew  
89. Name of the gun crew  
90. Name of the gun crew  
91. Name of the gun crew  
92. Name of the gun crew  
93. Name of the gun crew  
94. Name of the gun crew  
95. Name of the gun crew  
96. Name of the gun crew  
97. Name of the gun crew  
98. Name of the gun crew  
99. Name of the gun crew  
100. Name of the gun crew

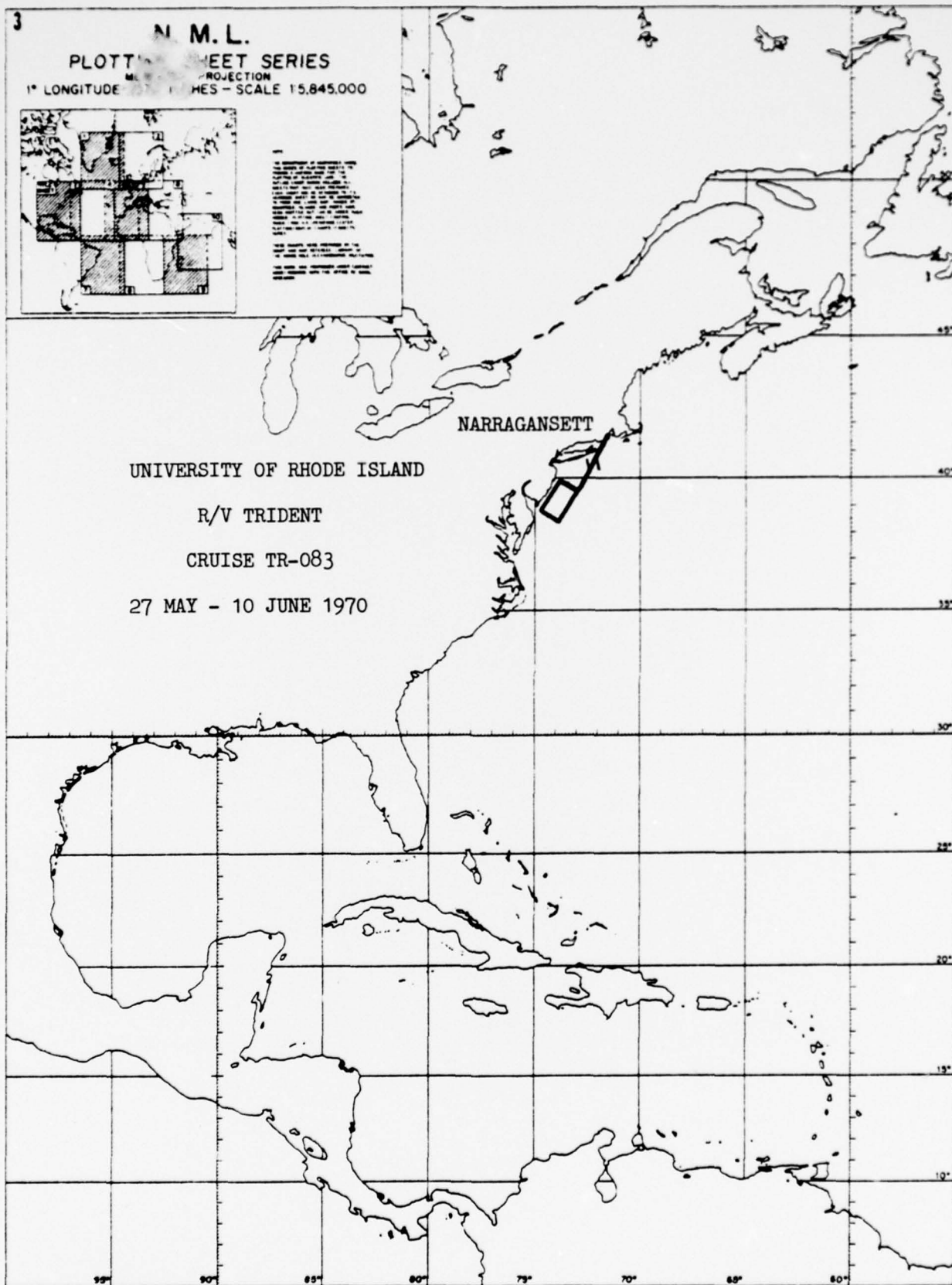
NARRAGANSETT

UNIVERSITY OF RHODE ISLAND

R/V TRIDENT

CRUISE TR-083

27 MAY - 10 JUNE 1970



Cruise No.: TR-084

Dates: 29 June - 8 July 1970

Area of Operation: North Atlantic  
Ocean

Days at sea: 10

Funding: NSF

#### Program Description

The main purpose of this cruise was:

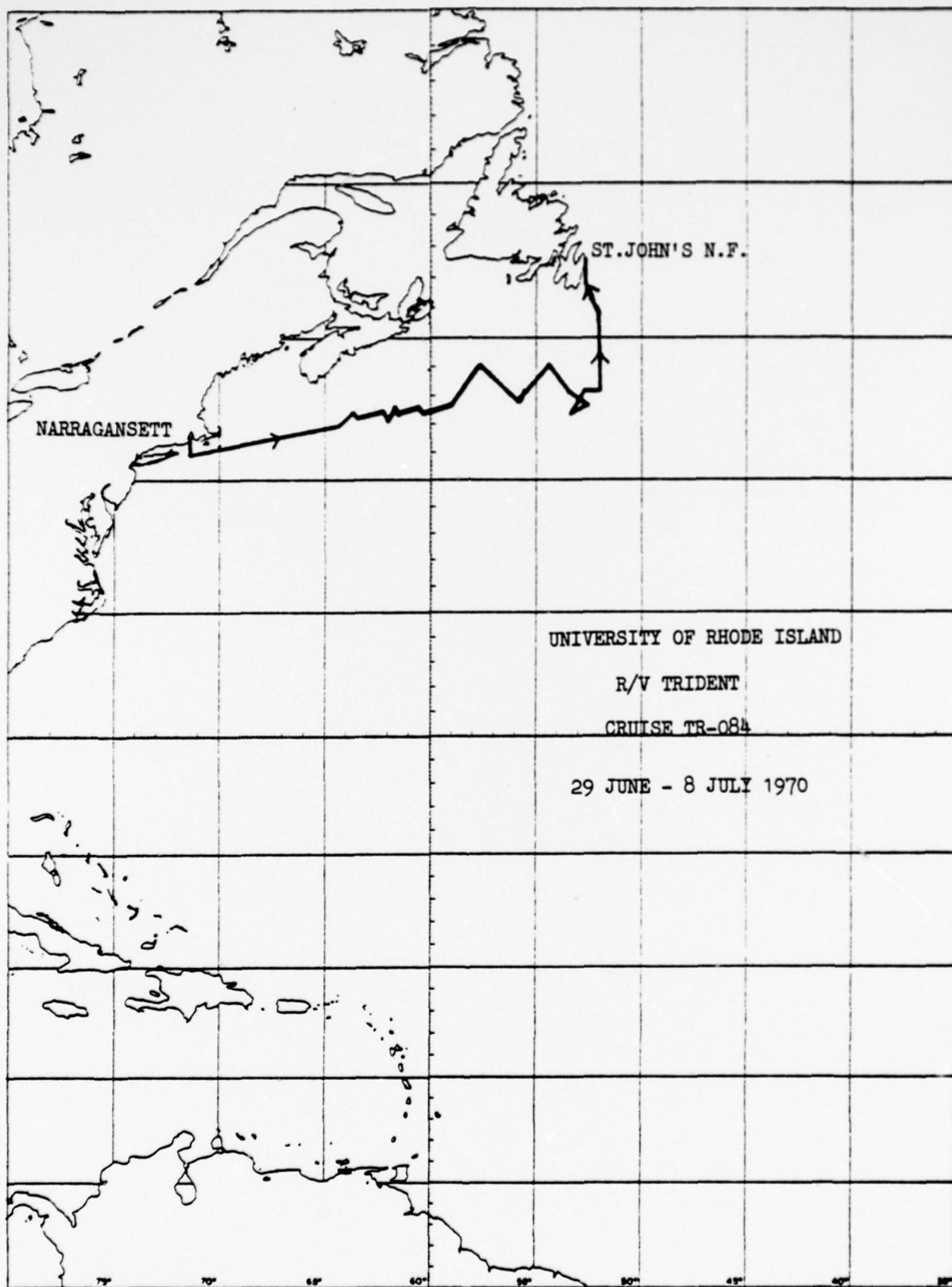
- a) to run geophysical studies south and southeast of the Laurentian Channel area
- b) to run seismic profiles in Cape Cod Bay
- c) to occupy hydro stations south of the Grand Banks

#### Data Collected

- 1) 1,035 n.m. each of bathymetry and magnetic profiles were run
- 2) 1,047 n.m. of seismic reflection profiles were run
- 3) two hydrographic stations were occupied

#### Participants

Dr. Gregory W. Webb	Chief Scientist	U. Mass.
Dr. Dana Kester	Associate Professor	U.R.I.
Mr. William Hahn	Oceanographic Specialist	U.R.I.
Mr. Joel Knee	Oceanographic Specialist	U.R.I.
Mr. Robert Byrne	Graduate Student	U.R.I.
Mr. Brendan Doherty	Graduate Student	U.R.I.
Mr. Martin Fisk	Graduate Student	U.R.I.
Mr. Frederick Haug	Geology Student	U.N.H.
Mr. John Richmond	Geology Student	U.R.I.
Mr. Thomas Casadevall	Geology Student	U.R.I.



Cruise No.: TR-085

Dates: 10 - 21 July 1970

Area of Operation: Northwest and  
Northeast  
Atlantic Oceans

Days at sea: 12

Funding: ONR, NSF

#### Program Description

The major goals of this cruise were:

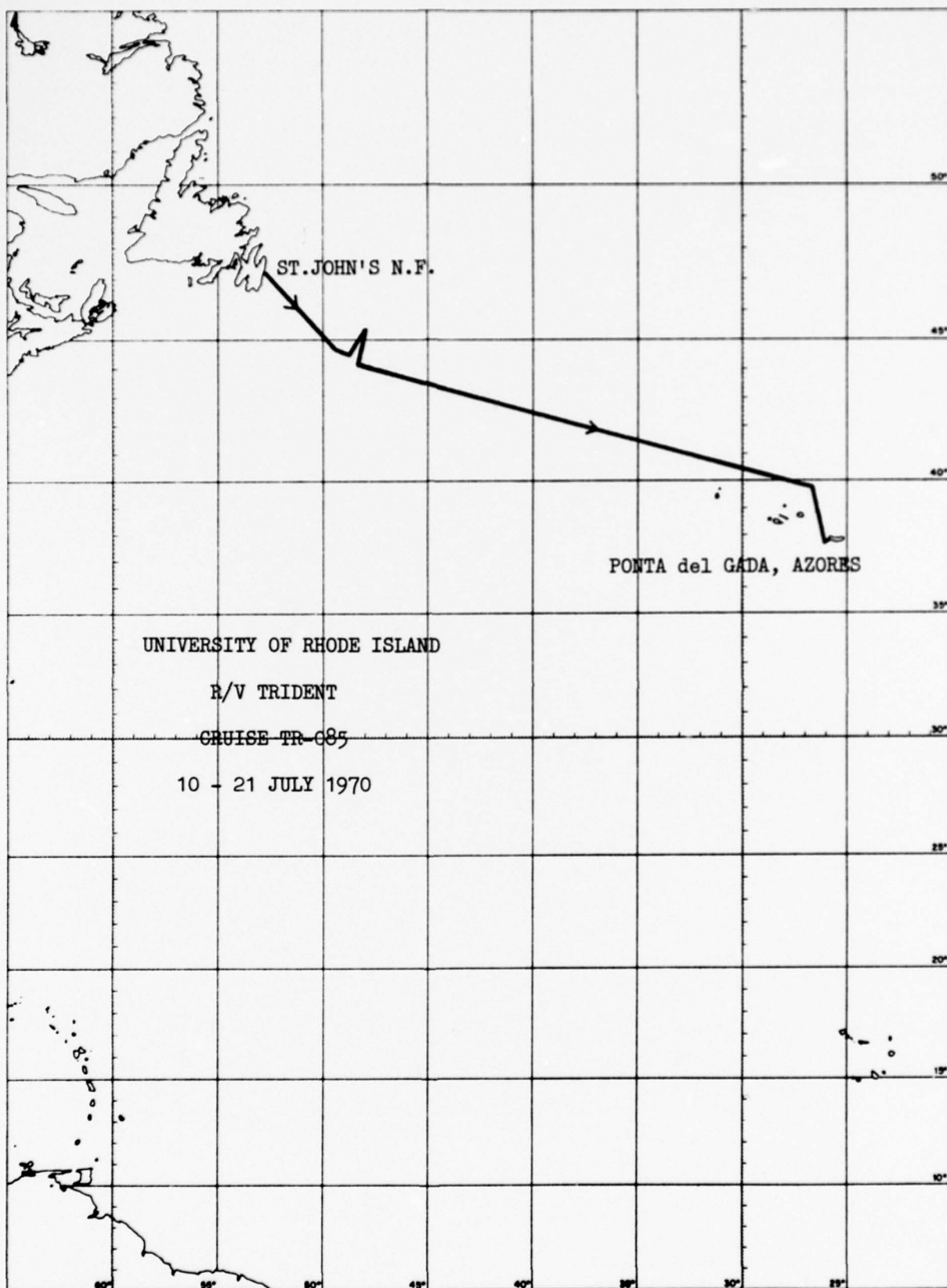
- a) to investigate the use of several chemical parameters as tracers of deep water between the Grand Banks and the mid-Atlantic Ridge
- b) to study chemical interactions between sediments and seawater
- c) to examine the occurrence of various trace elements in atmospheric particulate matter
- d) to obtain continuous observations of depth and total magnetic intensity between St. John's and Ponta Delgada

#### Data Collected

- 1) 1,500 n.m. of bathymetry and magnetic profiles were run
- 2) 11 hydrographic stations were occupied
- 3) 10 XBTs were taken
- 4) 11 cores were taken
- 5) samples were collected on Sao Miguel, Azores, for chemical analysis

#### Participants

Dr. Dana R. Kester	Chief Scientist	U.R.I.
Dr. Michael E. Q. Pilson	Co-Investigator	U.R.I.
Mr. Jarvis Moyers	Research Associate	U.R.I.
Mr. Robert H. Byrne, Jr.	Research Assistant	U.R.I.
Mr. Brendan T. Doherty	Research Assistant	U.R.I.
Mr. Kent A. Fanning	Research Assistant	U.R.I.
Mr. Martin R. Fisk	Research Assistant	U.R.I.
Mr. David L. Johnson	Research Assistant	U.R.I.
Mr. John Richmond	Research Assistant	U.R.I.
Mr. William Hahn	Oceanographic Specialist	U.R.I.
Mr. Joel Knee	Oceanographic Specialist	U.R.I.
Mr. Thomas Casadevall	Graduate Student	U.R.I.
Mr. Frederick Haug	Graduate Student	U.N.H.



Cruise No.: TR-086

Dates: 23 July - 10 August 1970

Area of Operation: North and  
Northeast  
Atlantic Ocean

Days at sea: 18

Funding: NSF, ONR

#### Program Description

The main purposes of this cruise were:

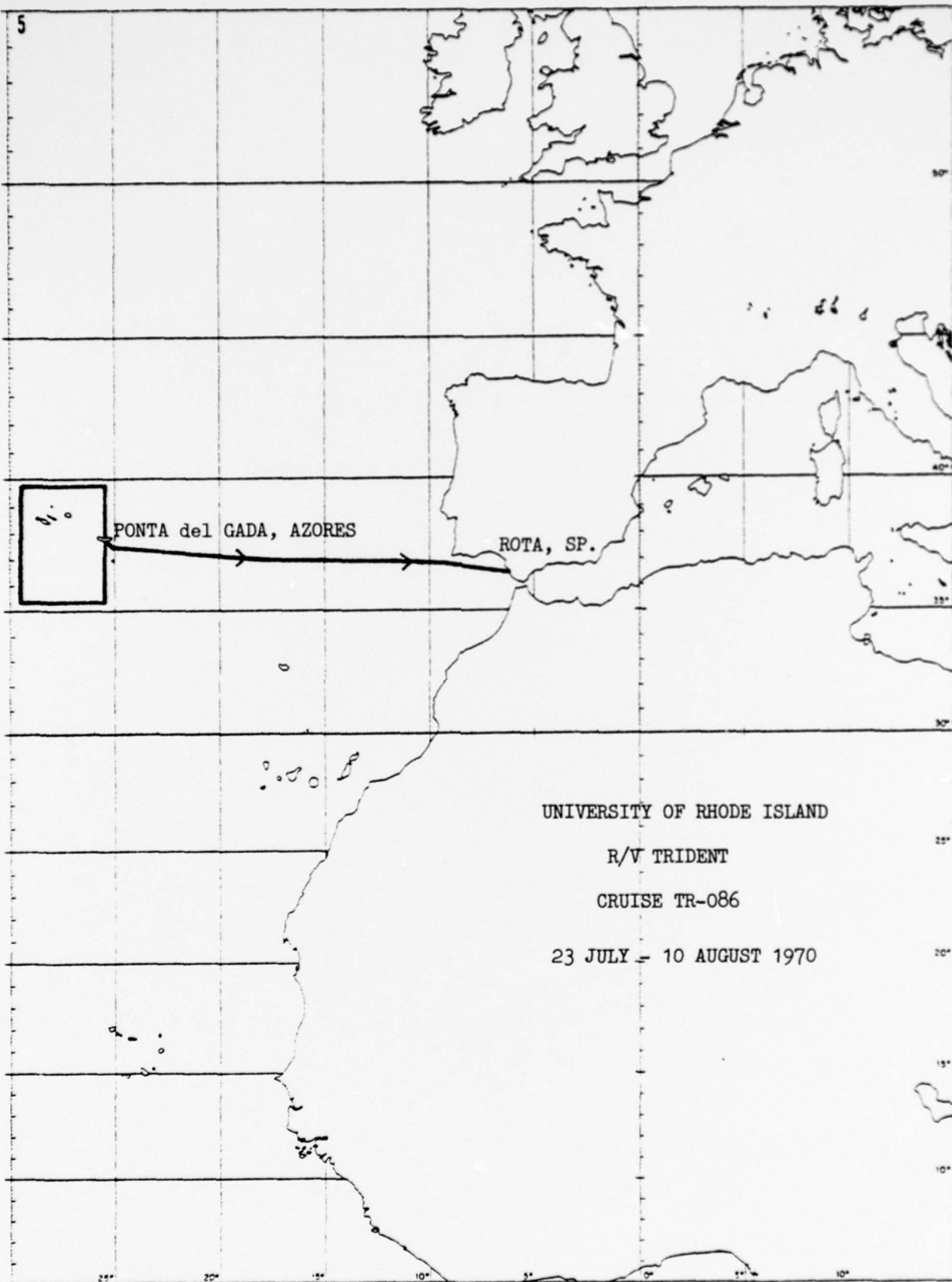
- a) to study the crustal junctions and the geological/geophysical features of the Azores Islands and in transit to Rota, Spain
- b) to collect bottom samples to assist in the analysis

#### Data Collected

- 1) 2,100 n.m. each of bathymetry and magnetic profiles were made
- 2) 1,640 n.m. of seismic reflection profiles were taken
- 3) eight dredges were taken
- 4) one core was taken
- 5) one camera station was occupied

#### Participants

Dr. Dale C. Krause	Co-Chief Scientist	U.R.I.
Dr. Jean-Guy Schilling	Co-Chief Scientist	U.R.I.
Dr. Frederico Machado	Volcanologist	Ministerio do Untramar, Portugal
Mr. J. Hipolito Monteiro	Geologist	Instituto Hidrografico, Portugal
Mr. William Hahn	Oceanographic Technician	U.R.I.
Mr. Joel Knee	Oceanographic Technician	U.R.I.
Mr. Fred W. Haug, Jr.	Graduate Student	U.N.H.
Mr. John W. Richmond, Jr.	Graduate Student	U.R.I.



Cruise No, TR-087

Dates: 14 August - 10 September 1970

Days at sea: 27

Funding: NSF

Area of  
Operation: Mediterranean  
Sea

#### Program Description

The main objectives of this cruise were:

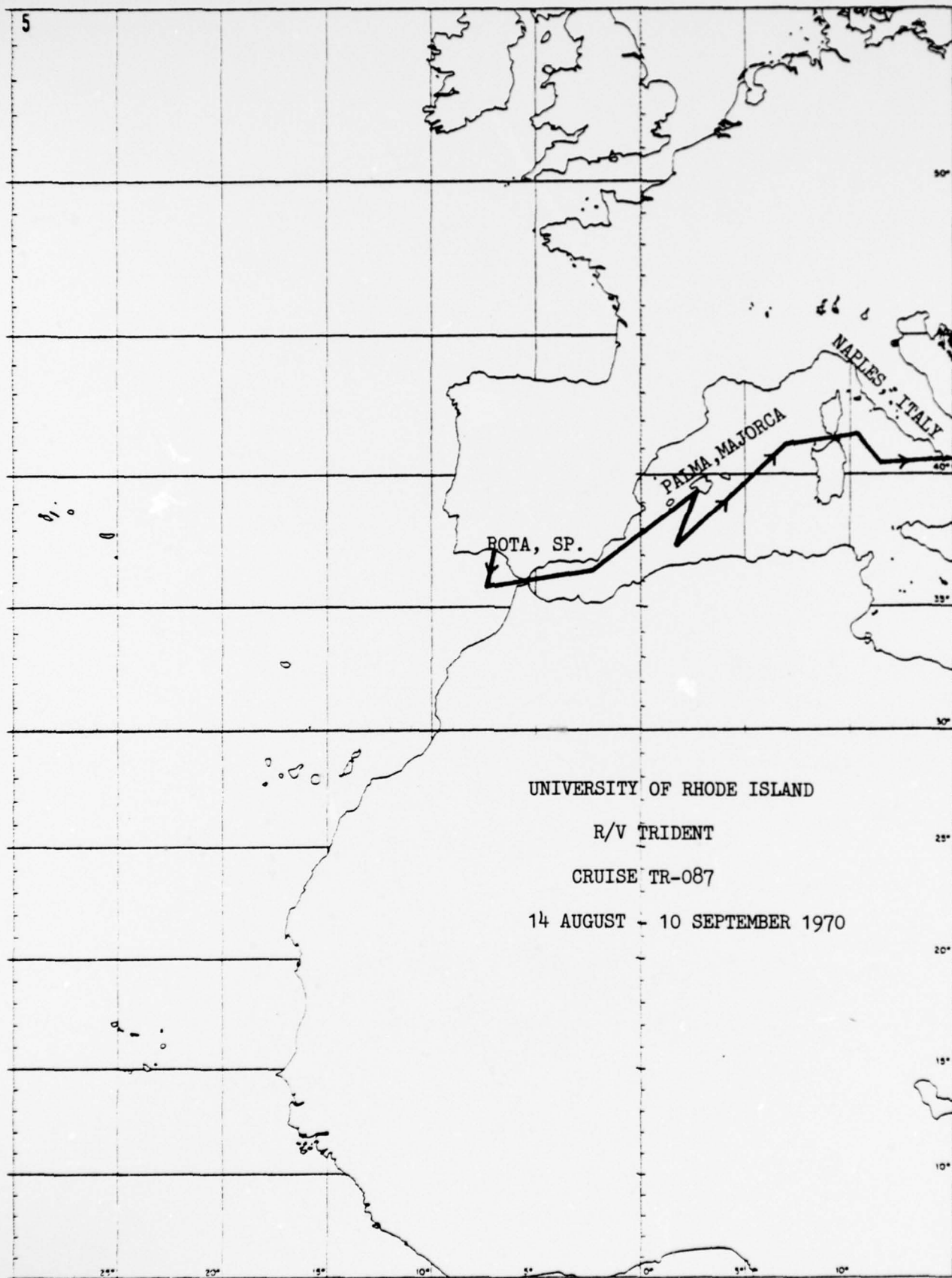
- a) to sample the water column at discrete depths using trawls, hydrographic techniques
- b) to sample the air-water interface
- c) to take continuous echo-sounding records during trawls

#### Data Collected

- 1) 60 trawls were taken
- 2) 100 neuston tows were recovered
- 3) two hydrographic stations were completed
- 4) 76 XBTs were taken

#### Participants

Dr. R. H. Gibbs, Jr.	Chief Scientist	Smithsonian
Mr. G. Alley	Scientist	NOIC
Mr. J. S. Bercaw	Scientist	General Motors
Mr. R. D. Gatton	Scientist	Smithsonian
Mr. R. H. Goodyear	Scientist	Smithsonian
Mr. W. Hoffman	Scientist	General Motors
Mr. C. Karnella	Scientist	Smithsonian
Mr. M. J. Keene	Scientist	Smithsonian
Mr. R. C. Kleckner	Scientist	Smithsonian
Mr. W. L. Pugh	Scientist	Navoceano
Mr. B. J. Zahurance	Scientist	Navoceano
Mr. J. Taylor	Scientist	Navoceano
Mr. W. Hahn	Marine Technician	U.R.I.
Mr. J. Knee	Marine Technician	U.R.I.
Mr. R. Sexton	Marine Technician	U.R.I.



Cruise No.: TR-088

Dates: 18 September - 2 October 1970

Days at sea: 15

Funding: NSF

Area of  
Operation: Mediterranean Sea and  
North Atlantic Ocean

#### Program Description

The major programs of this cruise were:

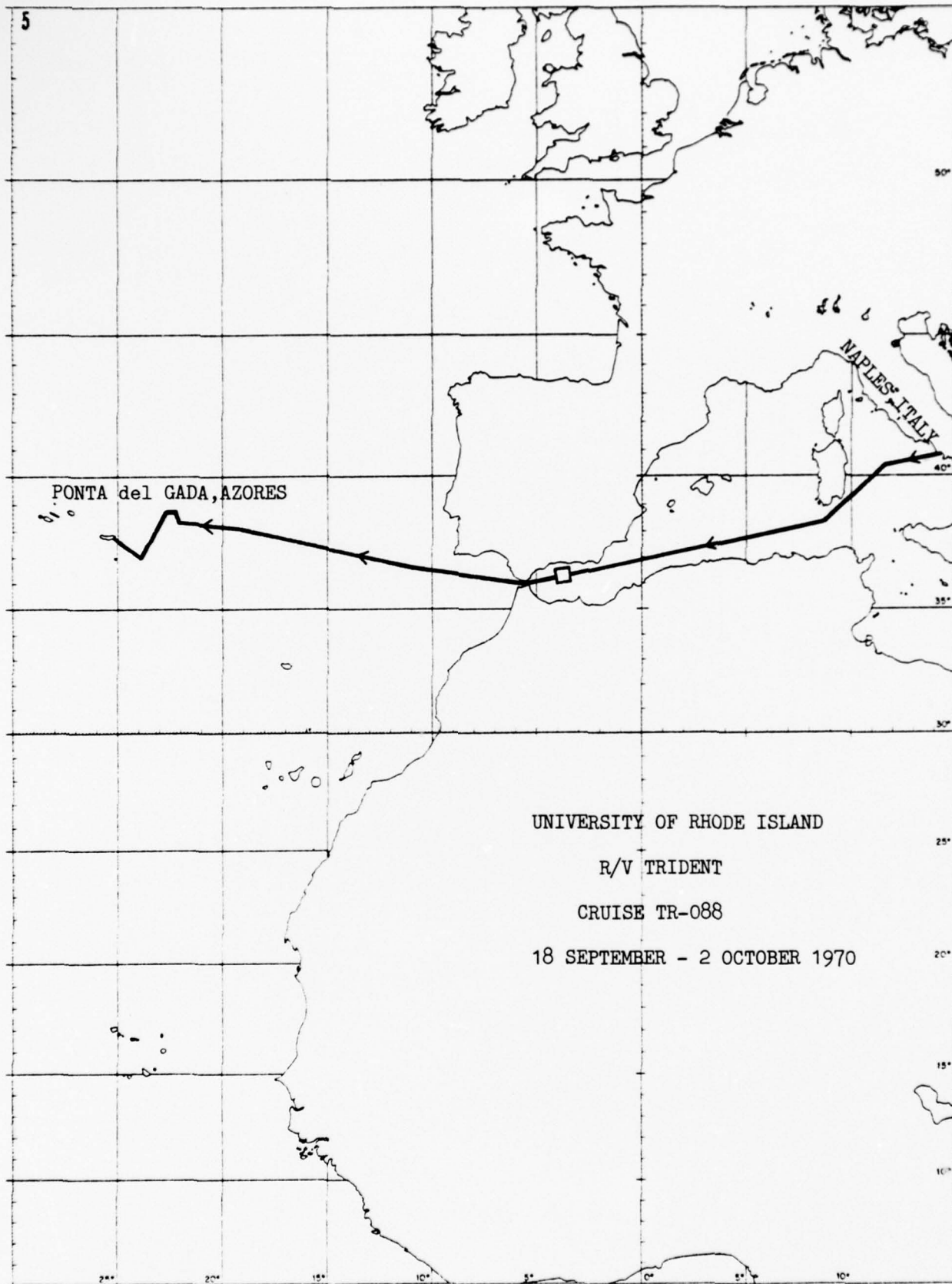
- a) studies of phytoplankton communities and bioluminescent intensity
- b) geophysical surveys of drill sites for JOIDES (Joint Oceanographic Institutions Deep Earth Sampling)
- c) testing of a new satellite navigation system

#### Data Collected

- 1) Plankton stations were occupied
- 2) Six hydrographic stations were made
- 3) 24 XBTs were taken
- 4) 1,080 n.m. of bathymetry and magnetic profiles were run
- 5) 195 n.m. of seismic reflection profiles were run
- 6) three cores were taken
- 7) two sediment heat flow measurements were made

#### Participants

Dr. Elijah Swift	Chief Scientist	U.R.I.
Mr. F. Rose	Oceanographic Specialist	U.R.I.
Mr. E. Christofferson	Graduate Student	U.R.I.
Mr. E. G. Durbin	Graduate Student	U.R.I.
Mr. M. Fisk	Graduate Student	U.R.I.
Ms. E. Papworth	Graduate Student	M.I.T.



Cruise No.: TR-089

Dates: 5 October - 10 November 1970

Days at sea: 34

Funding: NSF

Area of

Operation: Azores Islands area,  
Northeast and Northwest  
Atlantic Ocean

### Program Description

The main objectives of this cruise were:

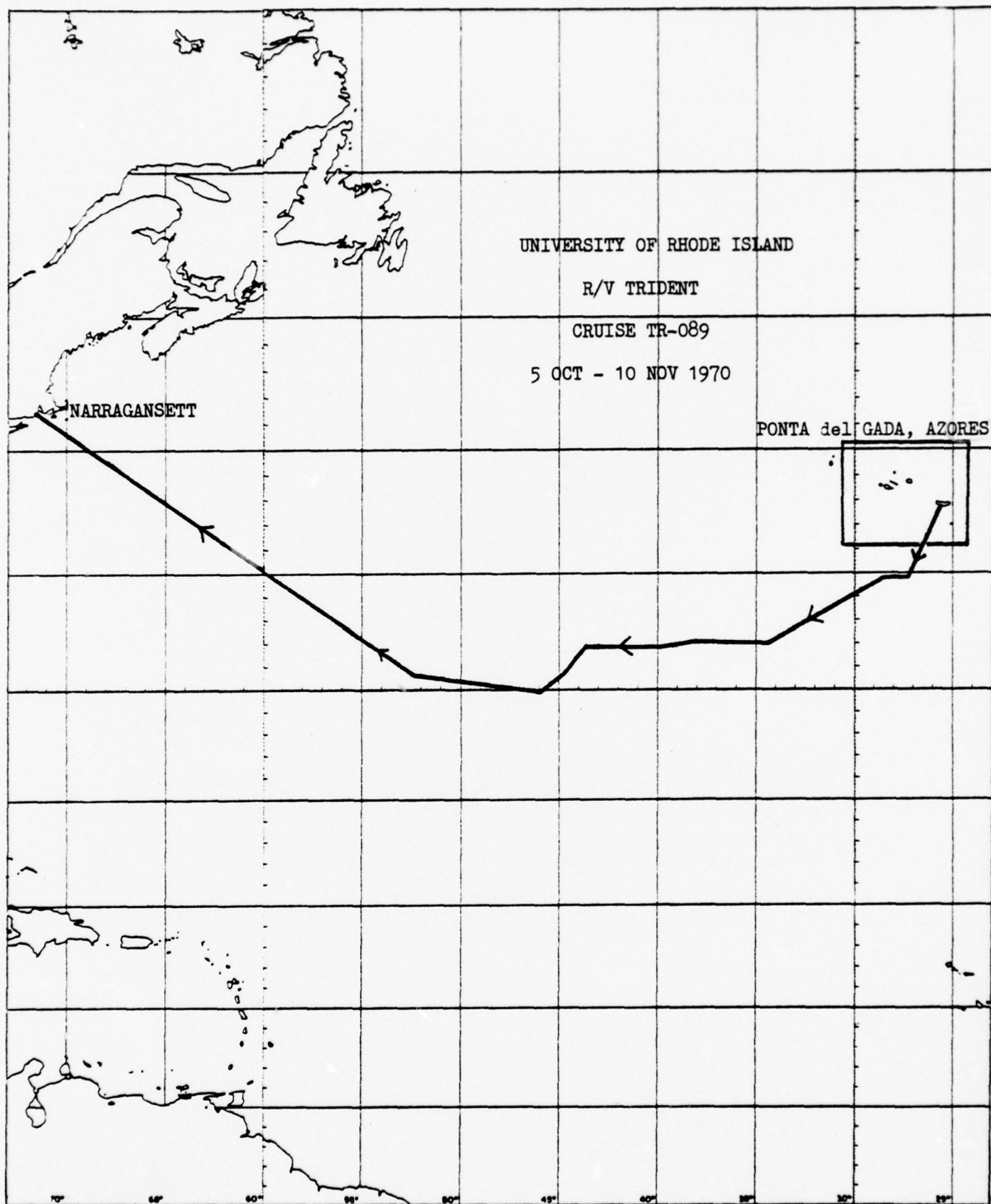
- a) to collect geological and geophysical samples and data in the Azores Islands area and across the North Atlantic Ocean

### Data Collected

- 1) 3,240 n.m. of bathymetry and magnetic profiles were run
- 2) 1,303 n.m. of seismic reflection profiles were taken
- 3) 12 rock dredges were taken
- 4) 12 cores with associated heat flow measurements were collected
- 5) one hydrographic station was made

### Participants

Dr. Jean-Guy Schilling	Co-Chief Scientist	U.R.I.
Dr. Dale C. Krause	Co-Chief Scientist	U.R.I.
Dr. Yoshio Oji	Petrologist	U.R.I./Fukuoka University, Japan
Mr. Philip P. Bedard	Electronics Engineer	U.R.I.
Mr. Robert Stevens	Engineer	M.I.T.
Ms. Bonnie A. McGregor	Research Assistant	U.R.I.
Mr. Frank Rose	Marine Technician	U.R.I.
Mr. Thomas Johnston	Graduate Student	U.R.I.
Ms. Elaine Papworth	Graduate Student	M.I.T.
Ms. Dolores Martinez Tapia	Graduate Student	University of Madrid



Cruise No.: TR-090

Dates: 27 November - 9 December 1970

Area of Operation: Northwest  
Atlantic Ocean

Days at sea: 13

Funding: NSF

#### Program Description

The main objectives of this cruise were:

- a) to collect biological samples for the Ocean Acre area (31°30' - 32°31' N, 63°30' - 64°30' W), representative of the pelagic fauna in November-December,
- b) to conduct bacteriological and light measurement studies
- c) to sample Sargassum weed

#### Data Collected

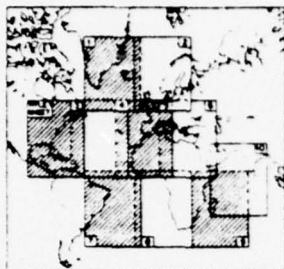
- 1) 11 Isaacs-Kidd midwater trawls were taken
- 2) Studies (a) and (b) above were performed

#### Participants

Dr. Theodore Napora	Chief Scientist	U.R.I.
Dr. Theodore Smayda	Professor	U.R.I.
Dr. Jack Willis	Asst. Professor/Physics	U.R.I.
Dr. Ellsworth Wheeler	Zoology Dept.	U.N.H.
Mr. William Hahn	Marine Technician	U.R.I.
Mr. Lloyd Balderston	Graduate Student	U.R.I.
Mr. Henry Donaldson	Graduate Student	U.R.I.
Mr. Gerard Hoffman	Graduate Student	University of Hawaii
Mr. William Plank	Graduate Student	University of Oregon

3

N. M. L.  
PLOTING SHEET SERIES  
MERCATOR PROJECTION  
1" LONGITUDE = 0.75 INCHES - SCALE 1:5,845,000



1. Symbols for land and water features.  
2. Symbols for navigational hazards.  
3. Symbols for depth soundings.  
4. Symbols for magnetic variation.  
5. Symbols for time zones.  
6. Symbols for celestial navigation.  
7. Symbols for radio navigation.  
8. Symbols for communication.  
9. Symbols for other navigational aids.  
10. Symbols for other navigational information.

UNIVERSITY OF RHODE ISLAND

R/V TRIDENT

CRUISE TR-090

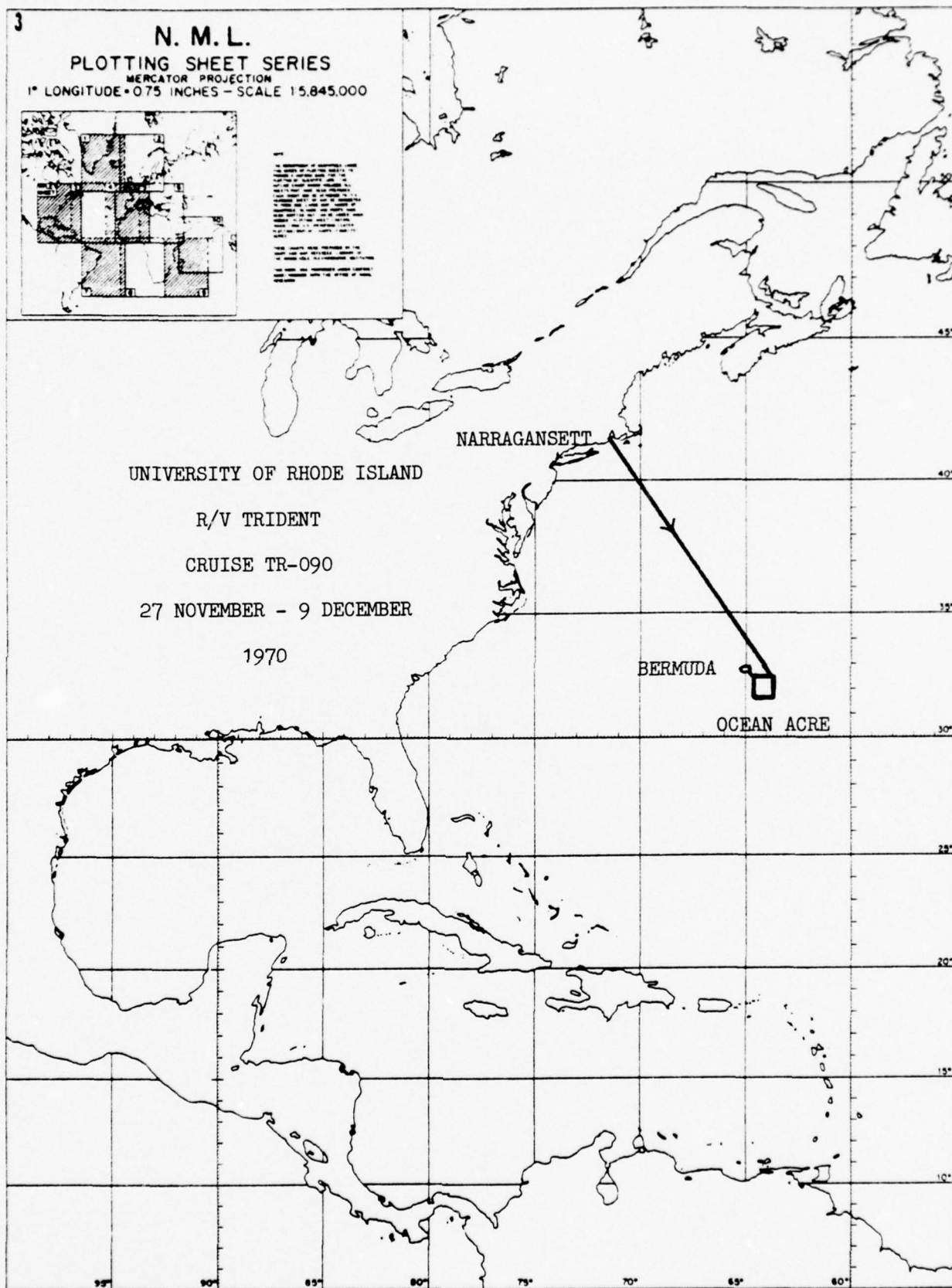
27 NOVEMBER - 9 DECEMBER

1970

NARRAGANSETT

BERMUDA

OCEAN ACRE



Cruise No.: TR-091

Dates: 11-19 December 1970

Area of Operation: Northwest  
Atlantic Ocean

Days at sea: 9

Funding: NSF, QNR

#### Program Description

The main programs on this cruise were:

- a) collection of water samples for chemical analysis
- b) to take cores on the Bermuda rise and Hatteras Abyssal Plain for chemical, physical and biological analyses

#### Data Collected

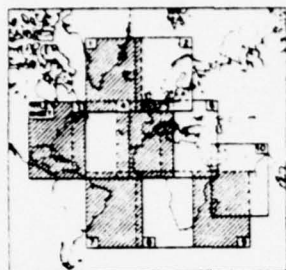
- 1) Six hydrographic stations were occupied
- 2) Nine sediment cores were taken

#### Participants

Dr. Michael E. Q. Pilson	Chief Scientist	U.R.I.
Mr. William Hahn	Marine Technician	U.R.I.
Ms. Frances Steinhilper	Marine Technician	U.R.I.
Mr. Peter Betzer	Graduate Student	U.R.I.
Mr. Kent Fanning	Graduate Student	U.R.I.
Mr. William Plank	Graduate Student	Oregon State Univ.
Mr. John Rehlen	Graduate Student	U.R.I.
Mr. Robert Betzer	Student	U.R.I.

3

N. M. L.  
PLOTING SHEET SERIES  
MERCATOR PROJECTION  
1° LONGITUDE = 0.75 INCHES - SCALE 1:5,845,000



1. NAME OF VESSEL  
2. NAME OF COMMANDER  
3. NAME OF CAPTAIN  
4. NAME OF FIRST OFFICER  
5. NAME OF SECOND OFFICER  
6. NAME OF THIRD OFFICER  
7. NAME OF FOURTH OFFICER  
8. NAME OF FIFTH OFFICER  
9. NAME OF SIXTH OFFICER  
10. NAME OF SEVENTH OFFICER  
11. NAME OF EIGHTH OFFICER  
12. NAME OF NINTH OFFICER  
13. NAME OF TENTH OFFICER  
14. NAME OF ELEVENTH OFFICER  
15. NAME OF TWELFTH OFFICER  
16. NAME OF THIRTEENTH OFFICER  
17. NAME OF FOURTEENTH OFFICER  
18. NAME OF FIFTEENTH OFFICER  
19. NAME OF SIXTEENTH OFFICER  
20. NAME OF SEVENTEENTH OFFICER  
21. NAME OF EIGHTEENTH OFFICER  
22. NAME OF NINETEENTH OFFICER  
23. NAME OF TWENTIETH OFFICER  
24. NAME OF TWENTY-FIRST OFFICER  
25. NAME OF TWENTY-SECOND OFFICER  
26. NAME OF TWENTY-THIRD OFFICER  
27. NAME OF TWENTY-FOURTH OFFICER  
28. NAME OF TWENTY-FIFTH OFFICER  
29. NAME OF TWENTY-SIXTH OFFICER  
30. NAME OF TWENTY-SEVENTH OFFICER  
31. NAME OF TWENTY-EIGHTH OFFICER  
32. NAME OF TWENTY-NINTH OFFICER  
33. NAME OF THIRTIETH OFFICER  
34. NAME OF THIRTY-FIRST OFFICER  
35. NAME OF THIRTY-SECOND OFFICER  
36. NAME OF THIRTY-THIRD OFFICER  
37. NAME OF THIRTY-FOURTH OFFICER  
38. NAME OF THIRTY-FIFTH OFFICER  
39. NAME OF THIRTY-SIXTH OFFICER  
40. NAME OF THIRTY-SEVENTH OFFICER  
41. NAME OF THIRTY-EIGHTH OFFICER  
42. NAME OF THIRTY-NINTH OFFICER  
43. NAME OF FORTIETH OFFICER  
44. NAME OF FORTY-FIRST OFFICER  
45. NAME OF FORTY-SECOND OFFICER  
46. NAME OF FORTY-THIRD OFFICER  
47. NAME OF FORTY-FOURTH OFFICER  
48. NAME OF FORTY-FIFTH OFFICER  
49. NAME OF FORTY-SIXTH OFFICER  
50. NAME OF FORTY-SEVENTH OFFICER  
51. NAME OF FORTY-EIGHTH OFFICER  
52. NAME OF FORTY-NINTH OFFICER  
53. NAME OF FIFTIETH OFFICER  
54. NAME OF FIFTY-FIRST OFFICER  
55. NAME OF FIFTY-SECOND OFFICER  
56. NAME OF FIFTY-THIRD OFFICER  
57. NAME OF FIFTY-FOURTH OFFICER  
58. NAME OF FIFTY-FIFTH OFFICER  
59. NAME OF FIFTY-SIXTH OFFICER  
60. NAME OF FIFTY-SEVENTH OFFICER  
61. NAME OF FIFTY-EIGHTH OFFICER  
62. NAME OF FIFTY-NINTH OFFICER  
63. NAME OF SIXTIETH OFFICER  
64. NAME OF SIXTY-FIRST OFFICER  
65. NAME OF SIXTY-SECOND OFFICER  
66. NAME OF SIXTY-THIRD OFFICER  
67. NAME OF SIXTY-FOURTH OFFICER  
68. NAME OF SIXTY-FIFTH OFFICER  
69. NAME OF SIXTY-SIXTH OFFICER  
70. NAME OF SIXTY-SEVENTH OFFICER  
71. NAME OF SIXTY-EIGHTH OFFICER  
72. NAME OF SIXTY-NINTH OFFICER  
73. NAME OF SEVENTIETH OFFICER  
74. NAME OF SEVENTY-FIRST OFFICER  
75. NAME OF SEVENTY-SECOND OFFICER  
76. NAME OF SEVENTY-THIRD OFFICER  
77. NAME OF SEVENTY-FOURTH OFFICER  
78. NAME OF SEVENTY-FIFTH OFFICER  
79. NAME OF SEVENTY-SIXTH OFFICER  
80. NAME OF SEVENTY-SEVENTH OFFICER  
81. NAME OF SEVENTY-EIGHTH OFFICER  
82. NAME OF SEVENTY-NINTH OFFICER  
83. NAME OF EIGHTIETH OFFICER  
84. NAME OF EIGHTY-FIRST OFFICER  
85. NAME OF EIGHTY-SECOND OFFICER  
86. NAME OF EIGHTY-THIRD OFFICER  
87. NAME OF EIGHTY-FOURTH OFFICER  
88. NAME OF EIGHTY-FIFTH OFFICER  
89. NAME OF EIGHTY-SIXTH OFFICER  
90. NAME OF EIGHTY-SEVENTH OFFICER  
91. NAME OF EIGHTY-EIGHTH OFFICER  
92. NAME OF EIGHTY-NINTH OFFICER  
93. NAME OF NINETYETH OFFICER  
94. NAME OF NINETY-FIRST OFFICER  
95. NAME OF NINETY-SECOND OFFICER  
96. NAME OF NINETY-THIRD OFFICER  
97. NAME OF NINETY-FOURTH OFFICER  
98. NAME OF NINETY-FIFTH OFFICER  
99. NAME OF NINETY-SIXTH OFFICER  
100. NAME OF NINETY-SEVENTH OFFICER  
101. NAME OF NINETY-EIGHTH OFFICER  
102. NAME OF NINETY-NINTH OFFICER  
103. NAME OF HUNDRETH OFFICER

UNIVERSITY OF RHODE ISLAND

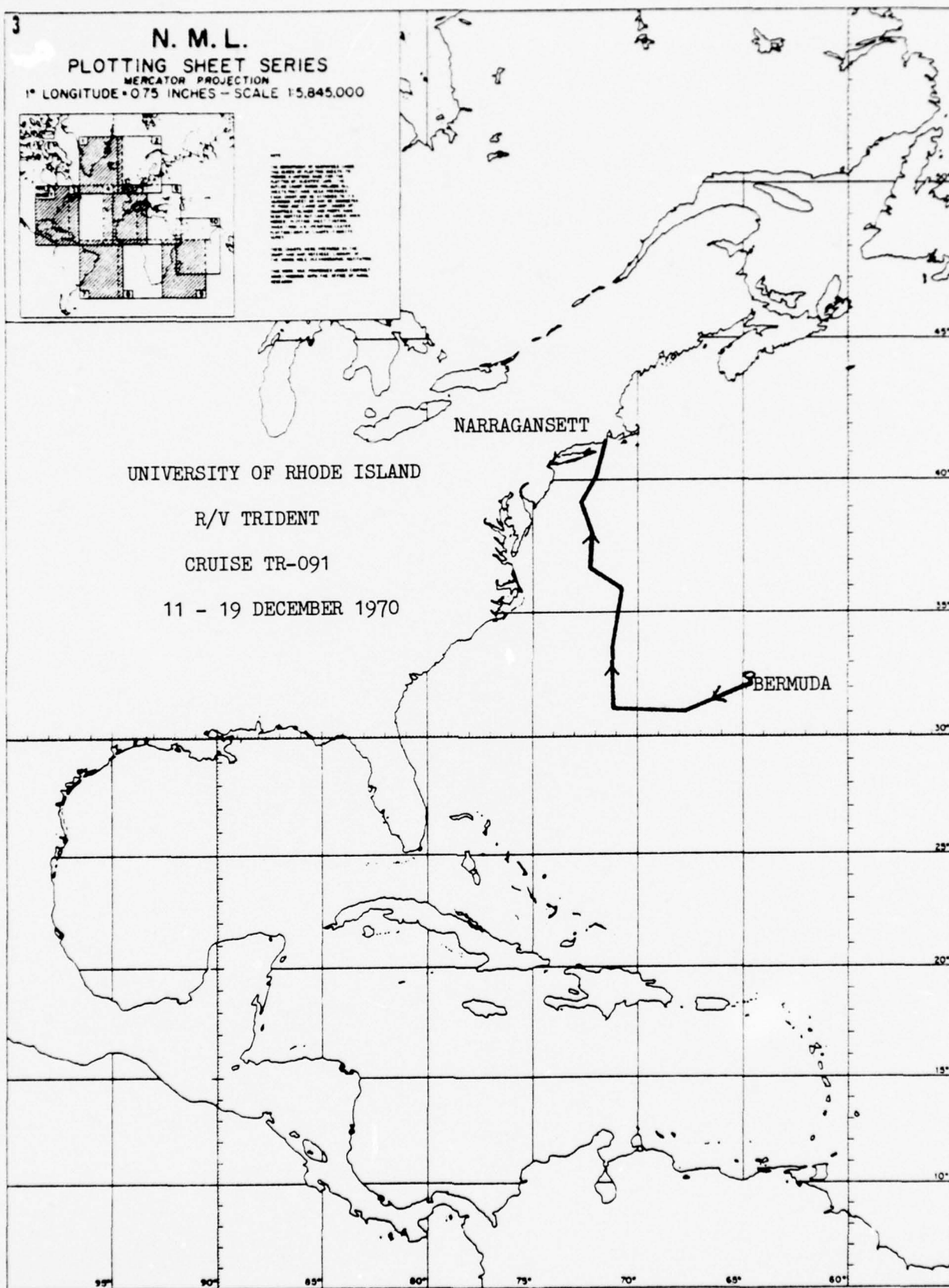
R/V TRIDENT

CRUISE TR-091

11 - 19 DECEMBER 1970

NARRAGANSETT

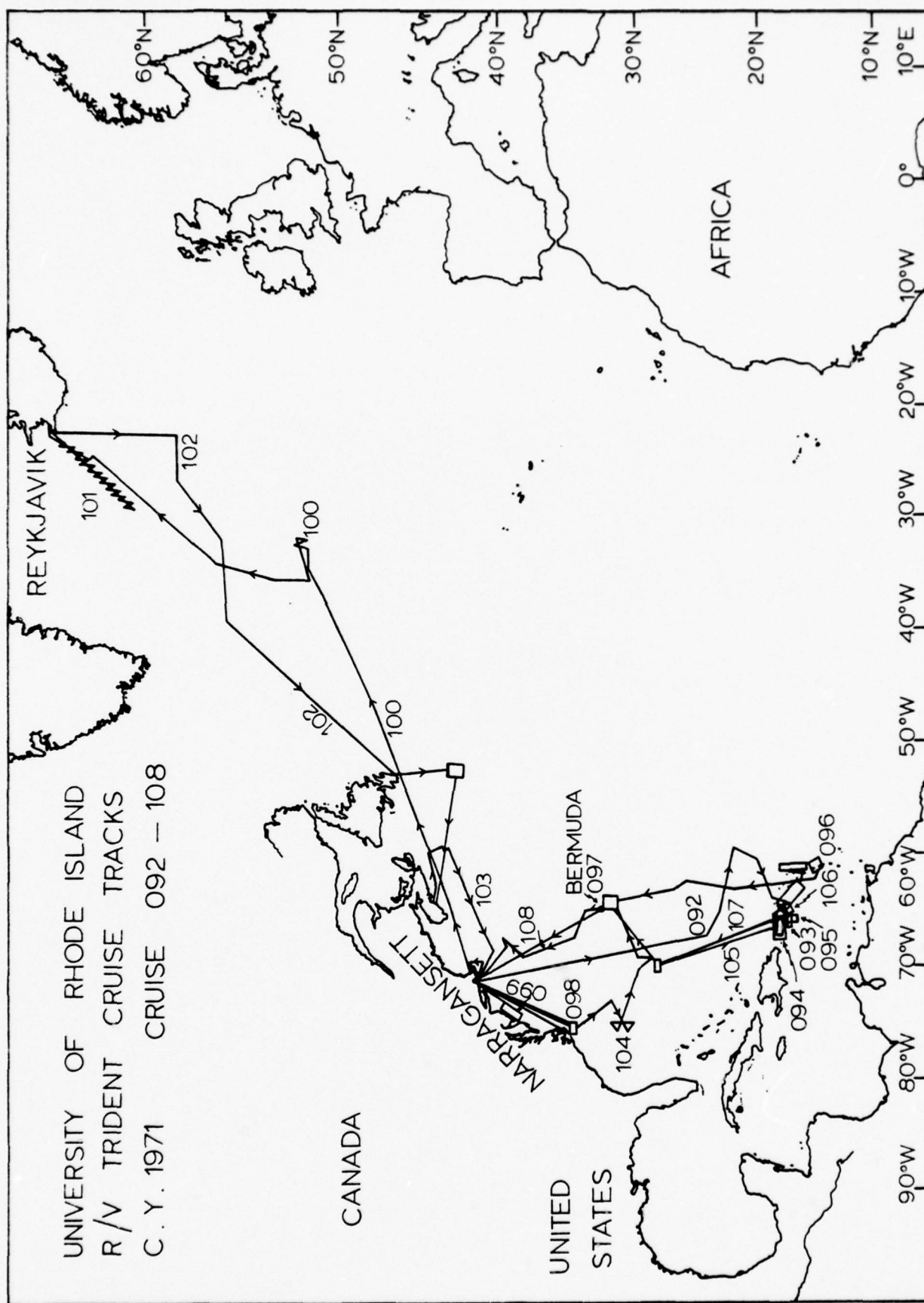
BERMUDA



R/V TRIDENT Cruises - CY 1971

Cruise No.	Dates	Days at Sea	Area of Operation	Chief Scientist/ Affiliation*
092	3-19 January	17	NW Atlantic and Caribbean	Winn
093	21-23 January	3	Caribbean Venezuela Basin	Sturges
094	24 Jan. - 1 Feb.	9	Caribbean and Sargasso	Winn
095	3-17 February	15	Caribbean	Sturges
096	21 Feb. - 28 Mar.	35	Caribbean	Fink/U. Maine
097	31 Mar. - 19 Apr.	19	NW Atlantic	Donaldson
098	5 May - 4 June	31	NW Atlantic	Richardson
099	6-18 June	13	NE Continental Shelf	McClennen
100	26 June - 15 July	20	North Atlantic	D.G. Johnson Schnitzer/U. Maine
101	17-29 July	13	North Atlantic	Schilling
102	2-24 August	21	North Atlantic	Kester
103	26 Aug. - 8 Sept.	14	North Atlantic	Winn
104	17 Oct. - 2 Nov.	17	NW Atlantic	Lambert
105	4-20 Nov.	17	NW Atlantic	Scarlet/M.I.T.
106	23-30 Nov.	8	Caribbean	Lambert
107	4-15 Dec.	12	NW Atlantic	Scarlet/M.I.T.
108	17-22 Dec.	6	NW Atlantic	Kester

\*GS0/URI unless otherwise noted



Cruise No.: TR-092

Dates: 3 - 19 January 1971

Area of Operation: Northwest Atlantic  
Ocean and  
Caribbean Sea

Days at sea: 17

Funding: ONR

#### Program Description

The main objectives of this cruise were:

- a) to continue whale and porpoise studies by transmitting and recording underwater sounds
- b) to attempt to collect eels in the Sargasso Sea

#### Data Collected

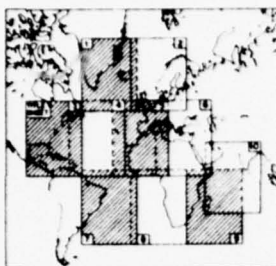
- 1) 172 underwater sound stop/listen stations were occupied for search, detection and tracking of numerous species of whales and porpoise
- 2) underwater sound recordings were made of whales and dolphins
- 3) TV records, 35 mm and movie films were made of pods of whale species
- 4) six longline sets caught a total of 65 shark, swordfish, tuna and other fish
- 5) 33 XBTs were taken

#### Participants

Dr. Howard E. Winn	Chief Scientist	U.R.I.
Mr. Paul J. Perkins	Oceanographic Specialist	U.R.I.
Mr. Richard Edel	Graduate Student	U.R.I.
Mr. Michael Fine	Graduate Student	U.R.I.
Mr. James Hain	Graduate Student	U.R.I.
Mr. Martin Hyman	Graduate Student	U.R.I.
Mr. John Mason	Graduate Student	U.R.I.
Mr. James Parrish	Graduate Student	U.R.I.
Mr. Robert Pikanowski	Graduate Student	U.R.I.
Mr. Algis Taruski	Graduate Student	U.R.I.

3

**N. M. L.**  
**PLOTTING SHEET SERIES**  
MERCATOR PROJECTION  
1" LONGITUDE = 0.75 INCHES - SCALE 1:5,845,000



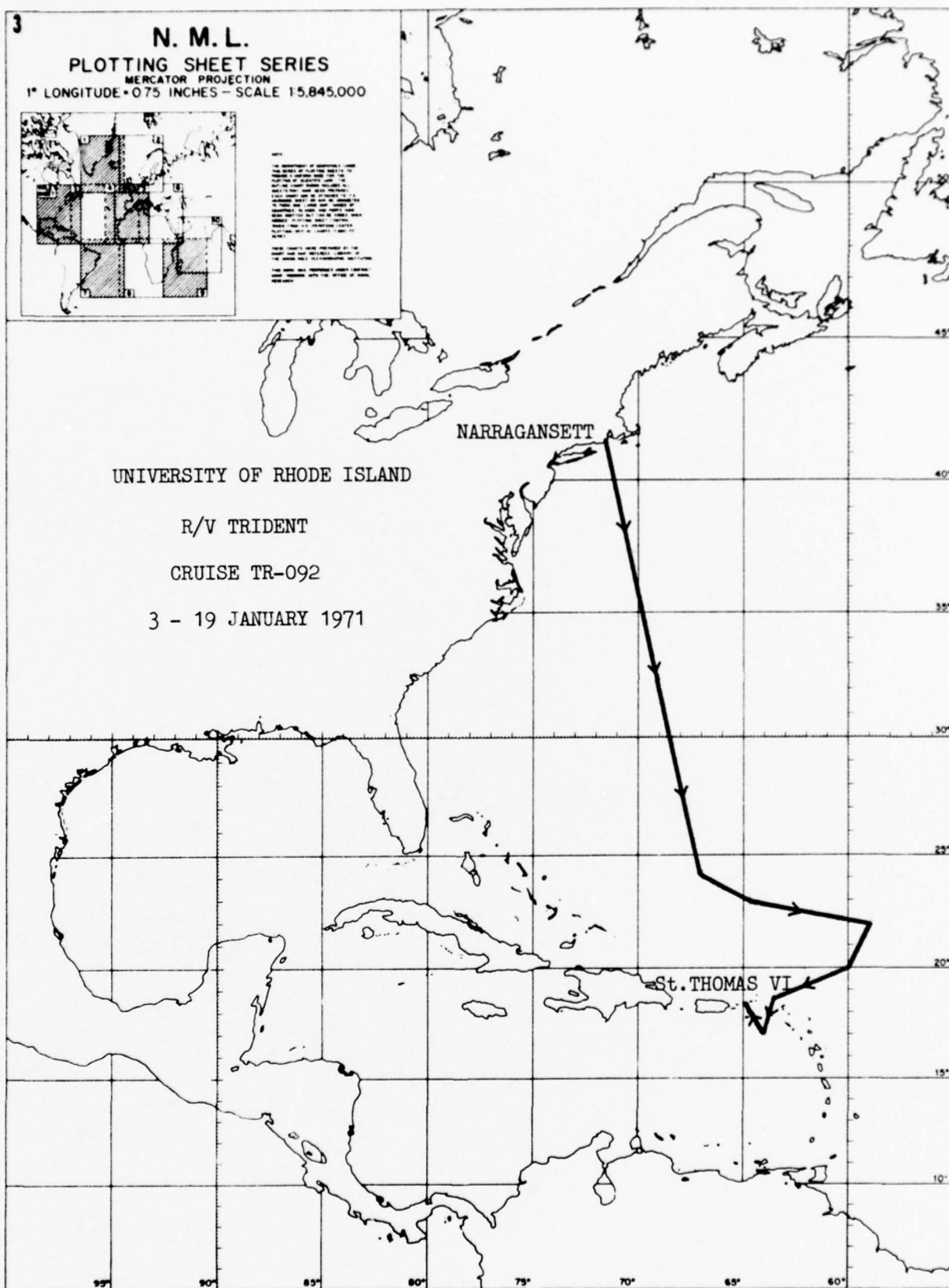
THE UNIVERSITY OF RHODE ISLAND  
NARRAGANSETT  
ST. THOMAS VI

UNIVERSITY OF RHODE ISLAND

R/V TRIDENT

CRUISE TR-092

3 - 19 JANUARY 1971



Cruise No.: TR-093

Dates: 21 - 23 January 1971

Area of Operation: Caribbean Sea and  
Venezuela Basin

Days at sea: 3

Funding: ONR

#### Program Description

The main objectives of this cruise were:

- a) to set an array of five current meters with a precision temperature recorder at the bottom
- b) to run a bathymetry pattern in the Venezuela Basin (weather permitted a limited pattern only)

#### Data Collected

- 1) five current meter arrays with six current meters and accompanying precision temperature recorders were deployed
- 2) bathymetric profiles were run in the Venezuela Basin
- 3) acoustic releases and an STD were tested

#### Participants

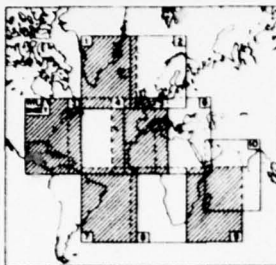
Dr. Wilton Sturges, III  
Mr. Philip Bedard  
Mr. R. E. Smith  
Mr. William Hahn  
Mr. James Sammons

Chief Scientist  
Electronics Technician  
Research Technician  
Marine Technician  
Electronics Technician

U.R.I.  
U.R.I.  
U.R.I.  
U.R.I.  
U.R.I.

3

**N. M. L.**  
**PLOTTING SHEET SERIES**  
MERCATOR PROJECTION  
1" LONGITUDE = 0.75 INCHES - SCALE 1:5,845,000



NOTE: This chart is a reproduction of the original chart. It is not to be used for navigation. It is for plotting only. The original chart is the only one to be used for navigation. The original chart is the only one to be used for plotting.

UNIVERSITY OF RHODE ISLAND

R/V TRIDENT

CRUISE TR-093

21 - 23 JANUARY 1971

ST THOMAS V.I.

Cruise No.: TR-094

Dates: 24 January - 1 February 1971      Area of Operation: Caribbean Sea  
and Sargasso Sea

Days at sea: 9

Funding: ONR

#### Program Description

The main objectives of this cruise were:

- a) to continue the study of humpback whales
- b) to maintain a continuous whale and porpoise watch
- c) to collect spawning eels in the Sargasso Sea area
- d) to conduct night underwater listening stations in conjunction with (a) and (b)
- e) to attempt to locate Echo Bank

#### Data Collected

- 1) 172 underwater sound stop/listen stations were occupied for search, detection of whales and porpoises
- 2) underwater sound recordings were made of calling whales and porpoises
- 3) four XBTs were taken

#### Participants

Dr. Howard E. Winn	Chief Scientist	U.R.I.
Mr. Paul J. Perkins	Oceanographic Specialist	U.R.I.
Mr. John Casey	Field Party Chief	NMFS
Mr. Charles Stillwell	Fisheries Biologist	NMFS
Mr. Harold Pratt	Fisheries Biologist	NMFS
Mr. Richard Edel	Graduate Student	U.R.I.
Mr. Michael Fine	Graduate Student	U.R.I.
Mr. James Hain	Graduate Student	U.R.I.
Mr. Martin Hyman	Graduate Student	U.R.I.
Mr. John Mason	Graduate Student	U.R.I.
Mr. James Parrish	Graduate Student	U.R.I.
Mr. Robert Pikanowski	Graduate Student	U.R.I.
Mr. Algis Taruski	Graduate Student	U.R.I.

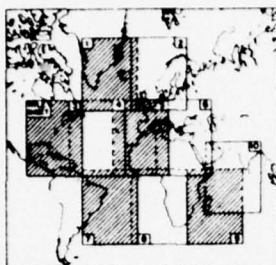
3

N. M. L.

## PLOTING SHEET SERIES

MERCATOR PROJECTION

1" LONGITUDE = 0.75 INCHES - SCALE 1:5,845,000



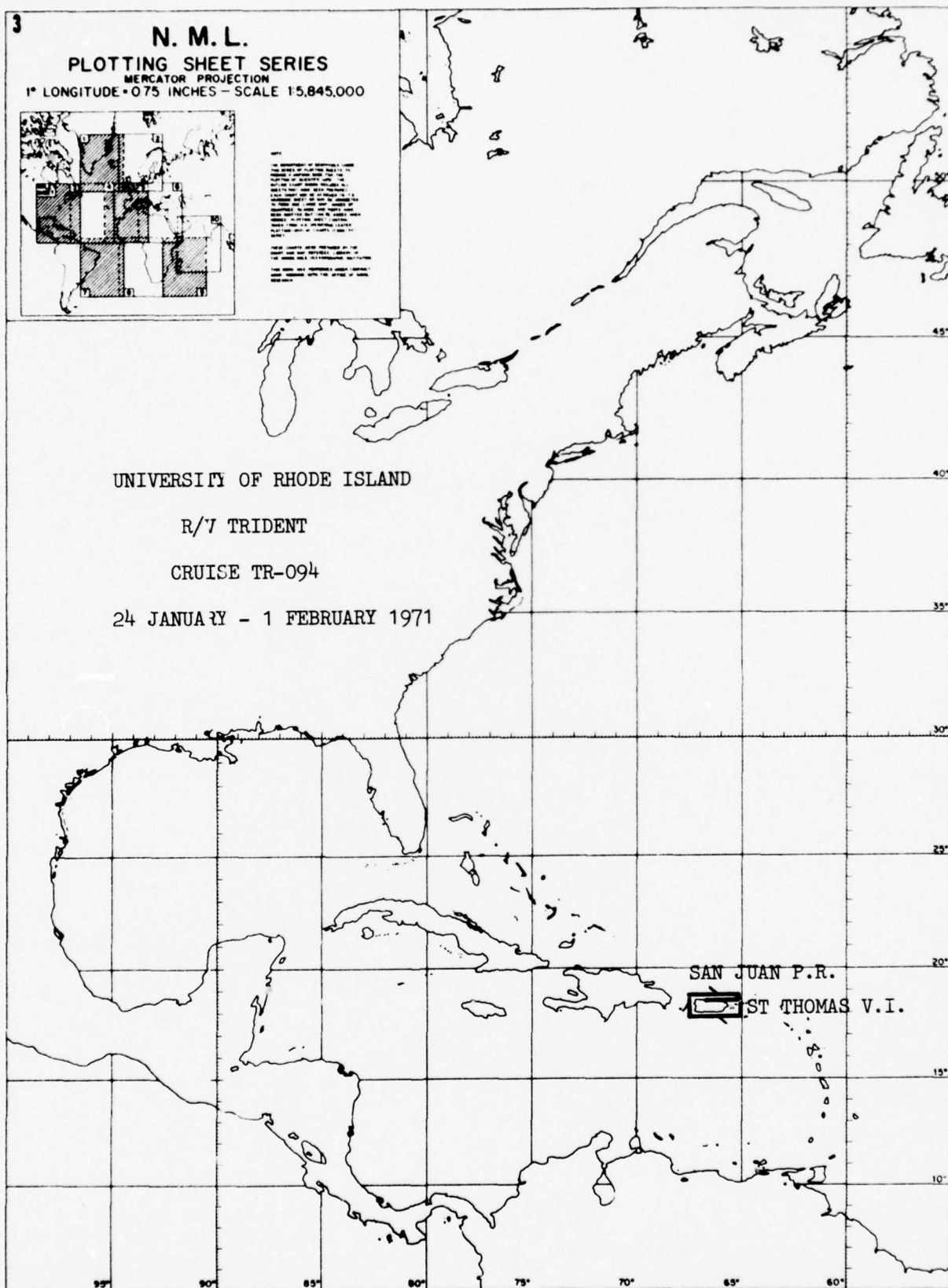
NOTE: This plotting sheet is to be used for plotting and recording observations of the University of Rhode Island R/V TRIDENT during Cruise TR-094. The sheet is to be used for plotting and recording observations of the University of Rhode Island R/V TRIDENT during Cruise TR-094. The sheet is to be used for plotting and recording observations of the University of Rhode Island R/V TRIDENT during Cruise TR-094.

UNIVERSITY OF RHODE ISLAND

R/V TRIDENT

CRUISE TR-094

24 JANUARY - 1 FEBRUARY 1971



Cruise No.: TR-095

Dates: 3 - 17 February 1971

Area of Operation: Caribbean Sea

Days at sea: 15

Funding: ONR

#### Program Description

The main objectives of this cruise were:

- a) to observe deep water inflow into the Caribbean Sea
- b) to observe mixing and entrainment as the renewal water sinks down the sloping bottom
- c) to observe temperature and salinity microstructure in the upper 600 to 700 meters
- d) to occupy several whale listening stations in the Mona Passage
- e) to recover current meters from TR-093
- f) to launch seven current meter arrays

#### Data Collected

- 1) three of five current meter arrays from TR-093 retrieved
- 2) seven current meter arrays launched with a total of nine current meters
- 3) five drifting STD stations occupied

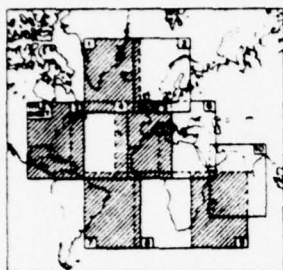
#### Participants

Dr. W. Sturges, III	Chief Scientist	U.R.I.
Dr. R. B. Lambert	Assistant Professor	U.R.I.
Mr. P. Bedard	Electronics Engineer	U.R.I.
Mr. W. P. Kramer	Research Associate	U.R.I.
Mr. R. Smith	Oceanographic Specialist	U.R.I.
Mr. R. K. Sexton	Senior Marine Technician	U.R.I.
Mr. W. Hahn	Marine Technician	U.R.I.
Mr. J. Sammons	Electronics Technician	U.R.I.
Ms. F. Steinhilper	Marine Technician	U.R.I.
Mr. M. Weishan	Marine Technician	U.R.I.
Ms. E. Jernigan	Graduate Student	U.R.I.
Mr. L. Miller	Graduate Student	U.R.I.

3

N. M. L.  
PLOTING SHEET SERIES

MERCATOR PROJECTION  
1" LONGITUDE = 0.75 INCHES - SCALE 1:5,845,000



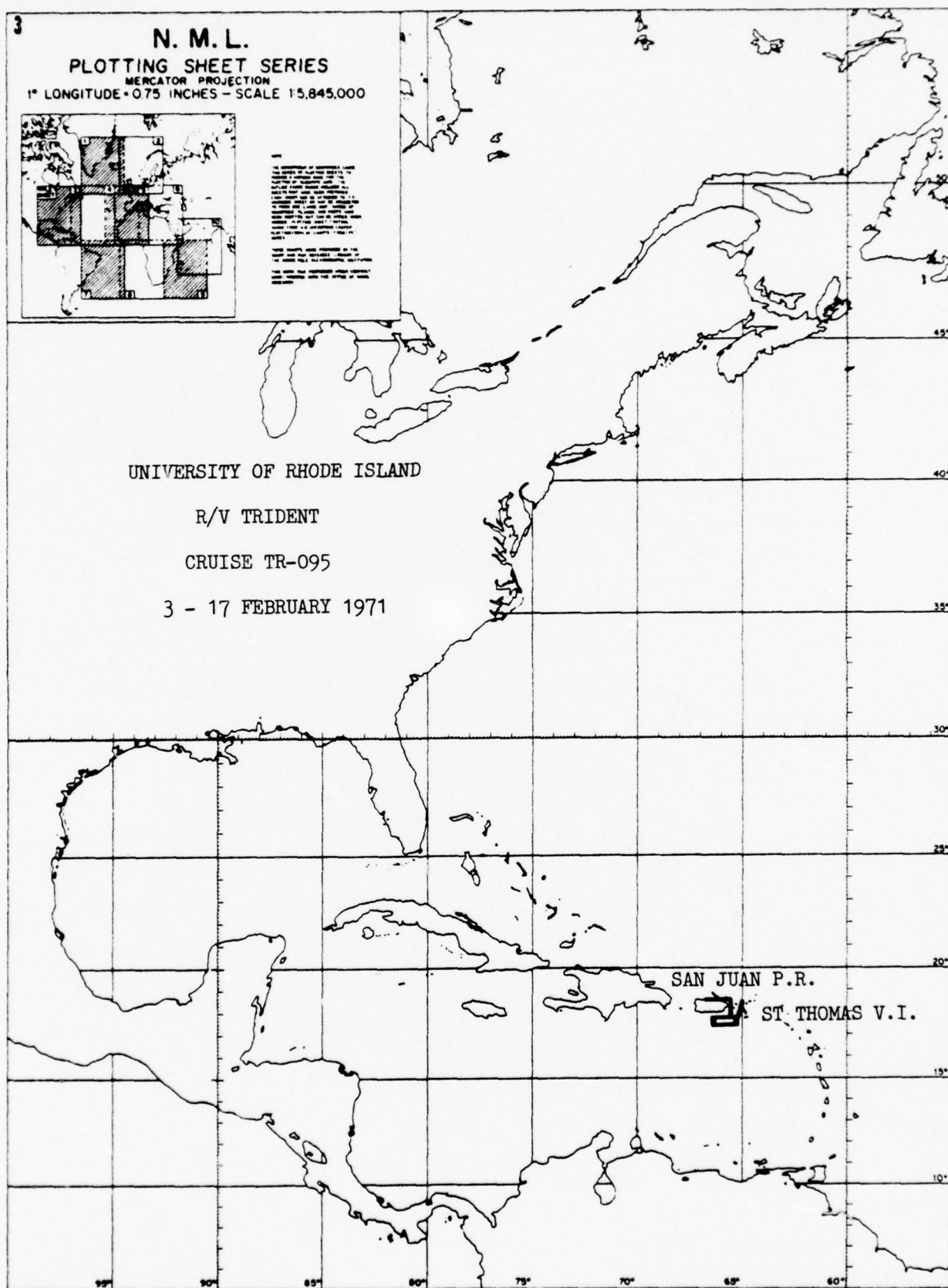
1. Symbols for land and water features  
2. Symbols for navigational aids  
3. Symbols for depth soundings  
4. Symbols for magnetic variation  
5. Symbols for current and tide data  
6. Symbols for weather and climate data  
7. Symbols for biological and geological data  
8. Symbols for historical and cultural data  
9. Symbols for administrative and political data  
10. Symbols for economic and social data

UNIVERSITY OF RHODE ISLAND

R/V TRIDENT

CRUISE TR-095

3 - 17 FEBRUARY 1971



Cruise No.: TR-096

Dates: Leg I: 21 February - 10 March 1971  
Leg II: 12 - 28 March 1971

Area of Operation: Caribbean  
Sea

Days at sea: Leg I: 18  
Leg II: 17

Funding: ONR  
NSF

#### Program Description

The main objectives of this cruise were:

- a) to study the Lesser Antilles Arc Region and the Aves Ridge Section:
  - 1) bathymetric, magnetic and seismic profiles were studied to:
  - 2) obtain the best dredging sites

#### Data Collected

- 1) 1,800 n.m. each of bathymetric and magnetic profiles were run
- 2) 1,700 n.m. of seismic reflection profiles were obtained
- 3) 17 dredge stations were occupied
- 4) three cores were taken
- 5) three camera stations were occupied

#### Participants

Dr. L. K. Fink, Jr.	Chief Scientist, Leg I	U. of Maine
Mr. Thomas H. Johnston	Chief Scientist, Leg II	U.R.I.
Dr. Detmar Schnitker	Professor	U. of Maine
Dr. Michel Feuillard	Professor	U. of Paris
Dr. Haraldur Sigurdsson	Professor	U. of West Indies
Mr. Francois LeLann	Research Associate	BGRM, Orleans
Mr. P.-M. Thibaut	Research Associate	BGRM, Martinique
Mr. Thomas Davis	Graduate Student	U.R.I.
Mr. Charles Heinonen	Graduate Student	U. of Maine
Mr. David G. Johnson	Graduate Student	U.R.I.
Mr. C. K. Unni	Graduate Student	U.R.I.
Mr. James Martell	Student	Geo. Washington Univ.
Mr. Paul Rusanowski	Student	U. of Maine
Mr. Art Buddington	Marine Technician	U.R.I.
Mr. Mark Weishan	Marine Technician	U.R.I.

PORT DE FRANCE  
MARTINIQUE, W.I.

Cruise No.: TR-097

Dates: 31 March - 19 April 1971

Area of Operation: Northwest  
Atlantic Ocean

Days at sea: 19

Funding: ONR

#### Program Description

The primary objectives of this cruise, in support of the Ocean Acre program, were:

- a) to observe the faunal and temperature changes between Martinique and Bermuda
- b) to collect crustaceans for chemical analysis in the area
- c) to study eel larvae and sargassum weed

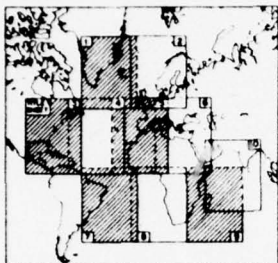
#### Data Collected

- 1) six XBTs were taken
- 2) nine hydrostations were made with phosphate and nitrate samples collected
- 3) 15 midwater trawls were taken
- 4) 39 phytoplankton tows were made
- 5) 19 zooplankton net tows were made
- 6) two sargassum weed areas were studied

#### Participants

Mr. Henry Donaldson	Chief Scientist	U.R.I.
Dr. Elijah Swift	Associate Professor	U.R.I.
Dr. Theodore J. Smayda	Professor	U.R.I.
Mr. Albert Brooks	Research Associate	NUSL
Mr. Charles Brown	Research Associate	NUSL
Mr. William Hahn	Marine Technician	U.R.I.
Mr. Mark Weishan	Marine Technician	U.R.I.
Mr. Ray Gerber	Graduate Student	U.R.I.
Mr. James Hajn	Graduate Student	U.R.I.
Mr. Gary Hitchcock	Graduate Student	U.R.I.
Mr. Raja Seshadri	Graduate Student	U.R.I.

1° LONGITUDE = 0.75 INCHES - SCALE 1:5,845,000

[illegible]

THE FBI (COUNTY) WAS NOTIFIED BY THE  
COUNTY AND THE DISTRICT ATTORNEY OF  
THE ABOVE NAMED AND APPROVED. THE FOLLOWING  
TEXT WAS RE-APPROVED UNDER (COUNTY)  
AND APPROVED BY THE OFFICE OF THE  
DISTRICT ATTORNEY.

NARRAGANSETT

UNIVERSITY OF RHODE ISLAND

R/V TRIDENT

CRUISE TR-097

31 MARCH - 19 APRIL 1971

BERMUDA

OCEAN ACRE

MARTINIQUE

Cruise No.: TR-098

Dates: 5 May - 4 June 1971

Area of Operation: Northwest  
Atlantic Ocean

Days at sea: 31

Funding: ONR

#### Program Description

The main purposes of this cruise were:

- a) to study the Gulf Stream deep and surface currents off Cape Hatteras by hydrographic measurements
- b) obtain evidence of bottom transport by taking cores and bottom photographs

#### Data Collected

- 1) eight current meter moorings with three temperature sensors were deployed
- 2) 272 XBTs were taken
- 3) 67 GEK measurements were made
- 4) 51 hydrographic stations were taken
- 5) 11 cores were taken
- 6) 5 camera stations were occupied

#### Participants

Mr. Philip Richardson	Chief Scientist	URI
Dr. Herman Zimmerman	Asst. Professor	Union College
Mr. Philip Isaacson	Project Engineer	UNH
Mr. Philip Bedard	Electronics Engineer	URI
Mr. Roger Smith	Oceanographic Specialist	URI
Mr. William Hahn	Marine Technician	URI
Mr. Jeff Parker	Marine Technician	URI
Mr. James Sammons	Electronics Technician	URI
Ms. Frances Steinhilper	Marine Technician	URI
Mr. Peter Betzer	Graduate Student	URI
Mr. David Gray	Graduate Student	URI
Mr. Gregory Han	Graduate Student	Johns Hopkins Univ.
Mr. Philip Meyers	Graduate Student	URI
Mr. Pablo Frank	Student	Vermont
Ms. Mary Moore	Student	Tufts Univ.
Mr. Timothy Staley	Student	Narragansett, R. I.

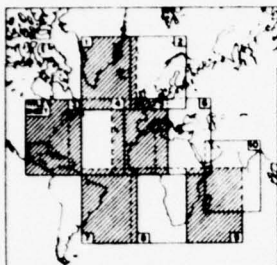
3

N. M. L.

## PLOTting SHEET SERIES

MERCATOR PROJECTION

1° LONGITUDE = 0.75 INCHES - SCALE 1:5,840,000



THE DEPARTMENT OF COMMERCE'S U.S. NAVY'S OFFICE OF NAUTICAL INFORMATION, 1650 RIVER ROAD, WASHINGTON, D.C. 20540, IS THE OFFICIAL SOURCE OF NAUTICAL INFORMATION. THIS MAP IS A REPRODUCTION OF THE OFFICIAL NAUTICAL CHART, NUMBER 1,100, OF THE NORTH ATLANTIC OCEAN, PUBLISHED BY THE U.S. NAVY'S OFFICE OF NAUTICAL INFORMATION, 1650 RIVER ROAD, WASHINGTON, D.C. 20540. THE MAP IS A REPRODUCTION OF THE OFFICIAL NAUTICAL CHART, NUMBER 1,100, OF THE NORTH ATLANTIC OCEAN, PUBLISHED BY THE U.S. NAVY'S OFFICE OF NAUTICAL INFORMATION, 1650 RIVER ROAD, WASHINGTON, D.C. 20540. THE MAP IS A REPRODUCTION OF THE OFFICIAL NAUTICAL CHART, NUMBER 1,100, OF THE NORTH ATLANTIC OCEAN, PUBLISHED BY THE U.S. NAVY'S OFFICE OF NAUTICAL INFORMATION, 1650 RIVER ROAD, WASHINGTON, D.C. 20540.

NARRAGANSETT

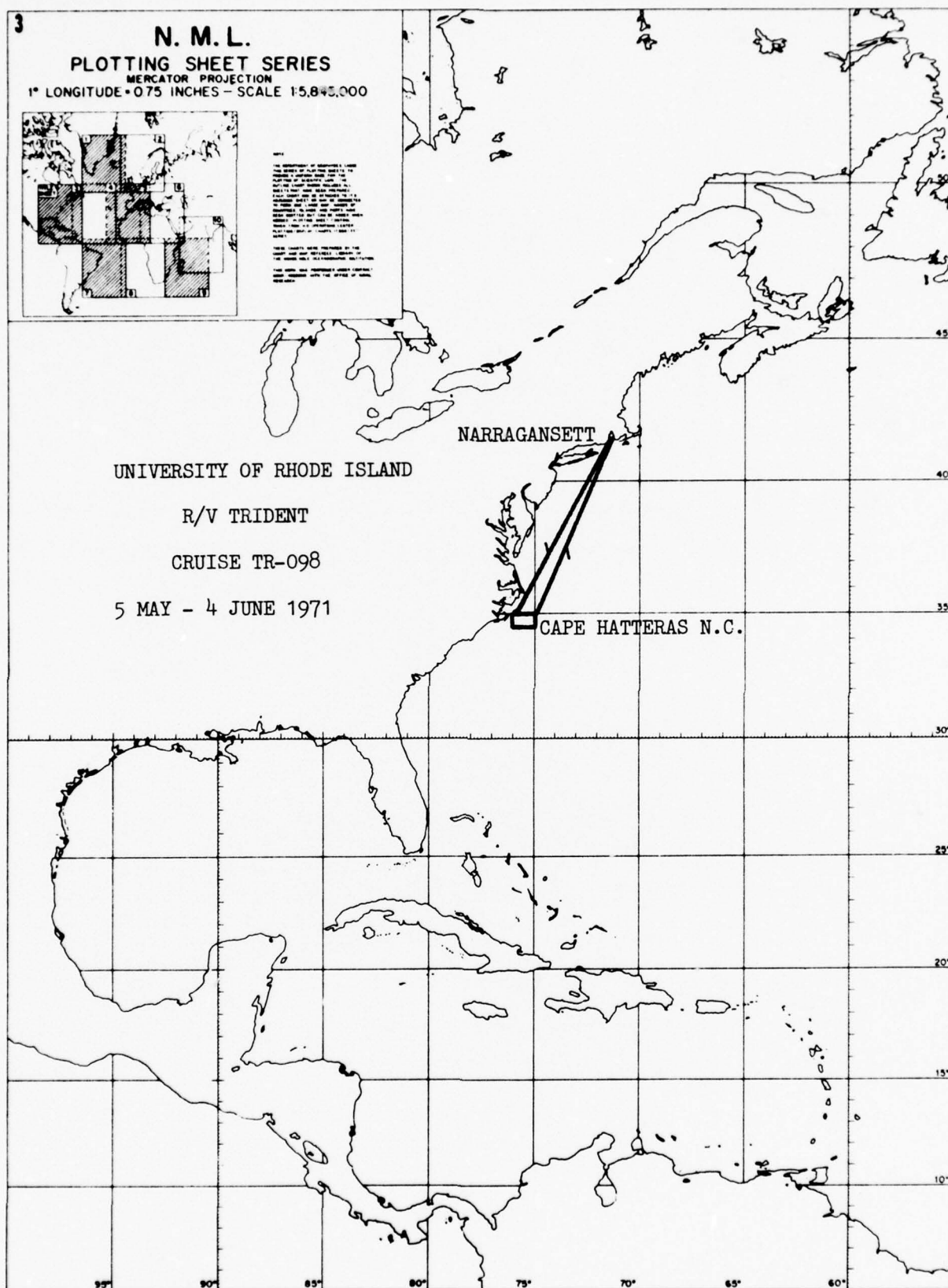
UNIVERSITY OF RHODE ISLAND

R/V TRIDENT

CRUISE TR-098

5 MAY - 4 JUNE 1971

CAPE HATTERAS N.C.



Cruise No.: TR-099

Dates: 6 - 18 June 1971

Area of Operation: Continental Shelf  
from New Jersey to  
Rhode Island

Days at sea: 13

Funding: ONR

#### Program Description

The main objectives of this cruise were:

- a) to perform a broad geologic and geophysical study of the Continental Shelf
- b) to study the relationship of shelf morphology to the surface and subsurface sediments
- c) to test the U.R.I. vibracorer
- d) to collect trace metal samples in the water column, zooplankton and sediments for the National Marine Water Quality Laboratory

#### Data Collected

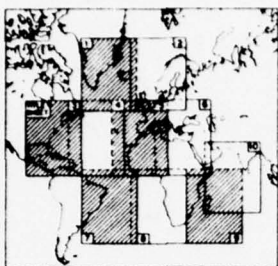
- 1) 1,320 n.m. of seismic reflection profiles were taken
- 2) 2,670 n.m. of bathymetry records were run
- 3) 26 cores taken (w/vibracorer and box corer, 13 each)
- 4) 15 grab samples
- 5) 13 camera stations
- 6) 10 hydrocasts made
- 7) three current meters deployed, two recovered, one lost

#### Participants

Mr. C. E. McClennen	Chief Scientist	U.R.I.
Dr. M. A. Hampton	Professor	U.R.I.
Mr. W. D. Davis	Research Assistant	NMWQL, Kingston, R. I.
Mr. R. Laplan	Research Assistant	NMWQL, Kingston, R. I.
Mr. A. B. Buddington	Marine Technician	U.R.I.
Mr. J. Parker	Marine Technician	U.R.I.
Mr. M. Weishan	Marine Technician	U.R.I.
Mr. D. L. Johnson	Graduate Student	U.R.I.
Mr. R. Fierce	Graduate Student	U.R.I.
Mr. J. W. Vogel	Graduate Student	U.R.I.

N. M. L.  
PLOTING SHEET SERIES

1° LONGITUDE = 0.75 INCHES - SCALE 1:5,845,000



THE UNIVERSITY OF CALIFORNIA LIBRARY  
100 UNIVERSITY AVENUE  
LOS ANGELES, CALIFORNIA 90024  
TEL: 213-875-8100  
FAX: 213-875-8100  
WWW: WWW.LIBRARY.UCLA.EDU  
E-MAIL: LIBRARY@LIBRARY.UCLA.EDU  
LIBRARY@LIBRARY.UCLA.EDU

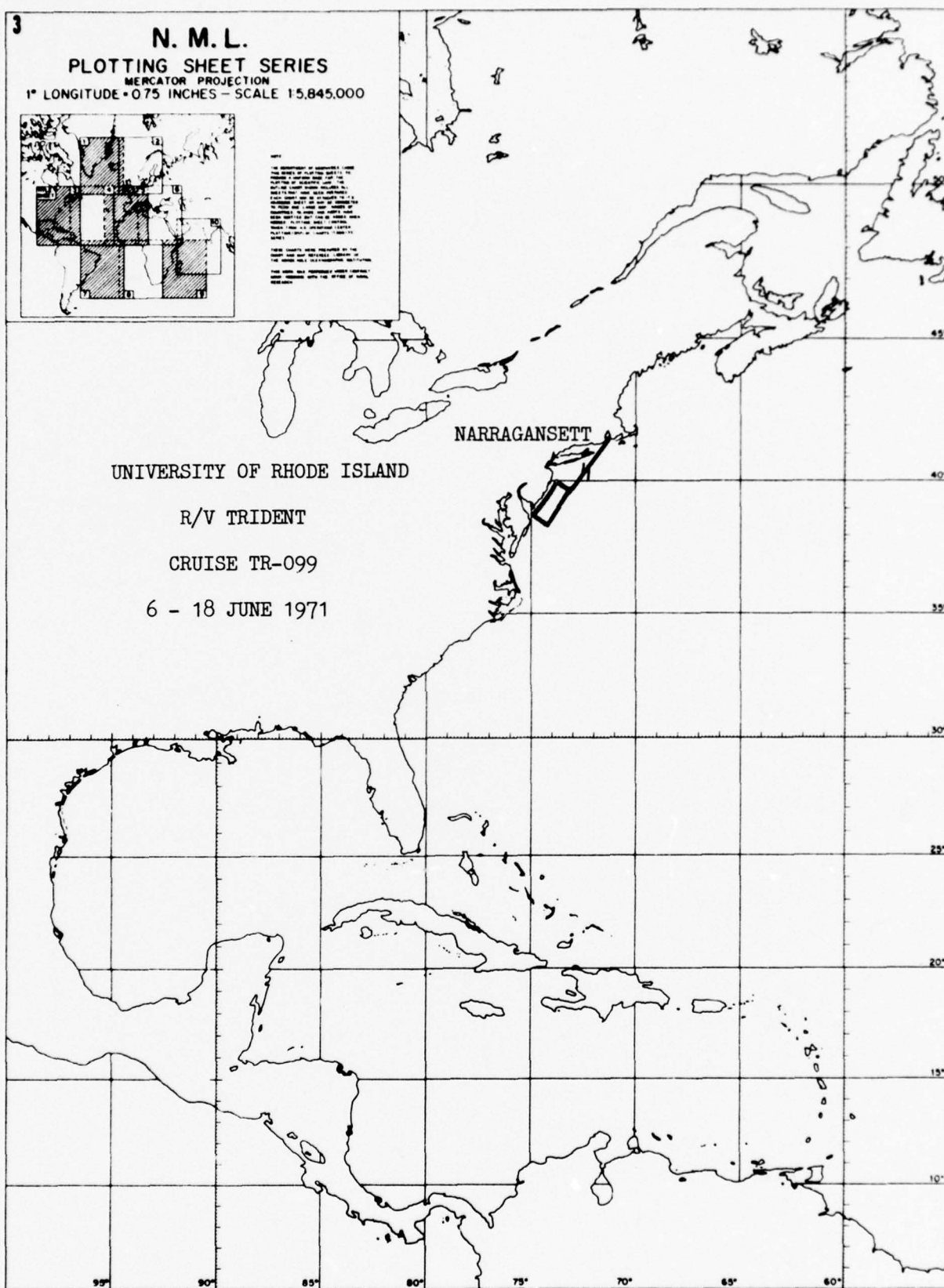
NARRAGANSETT

UNIVERSITY OF RHODE ISLAND

R/V TRIDENT

CRUISE TR-099

6 - 18 JUNE 1971



Cruise No.: TR-100

Dates: 26 June - 15 July 1971

Area of operation: North and  
Northwest Atlantic  
Ocean

Days at sea: 20

Funding: ONR

#### Program Description

The main objectives of this cruise were:

- a) to study the Gibbs Fracture Zone with bathymetry, magnetics and seismic profiles
- b) to take cores from the Flemish Cap to the Gibbs Fracture Zone
- c) to take dredge stations on the southern section of the Reykjanes Ridge

Auxiliary objectives:

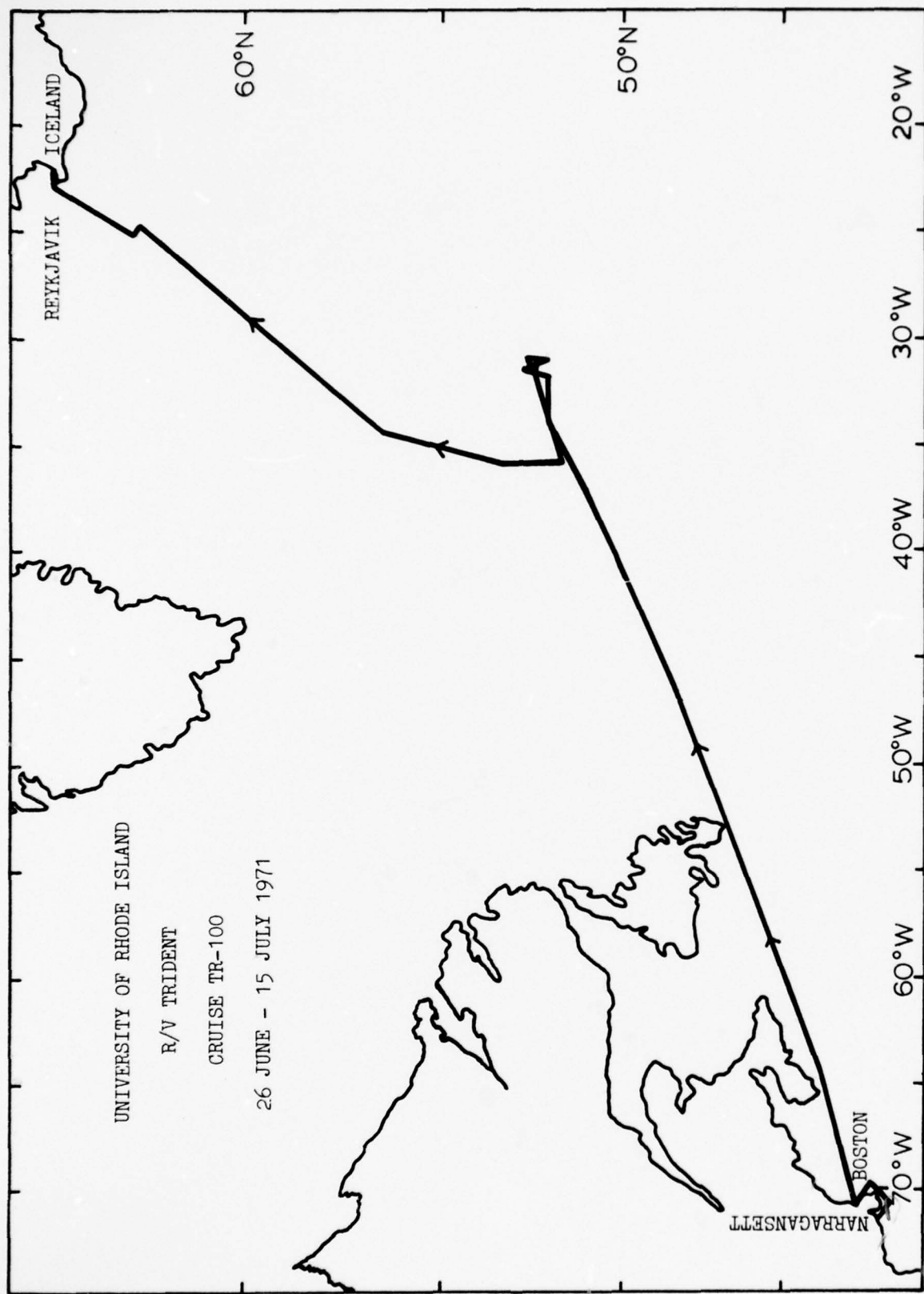
- d) to study abyssal foraminifera in the Northwest Atlantic
- e) to take rock dredges of the oceanic crust

#### Data Collected

- 1) 2,730 n.m. of bathymetry were taken
- 2) 2,730 n.m. of magnetics were run
- 3) 108 n.m. of seismic reflection profiles
- 4) 12 cores were taken
- 5) seven dredges were recovered

#### Participants

Mr. David G. Johnson	Co-Chief Scientist	U.R.I.
Dr. Detmar Schnitker	Co-Chief Scientist	U. of Maine
Mr. Kip Barkley	Ocean Engineer	U.R.I.
Mr. James Cullen	Geologist	Wesleyan U.
Mr. Richard Plumb	Geophysicist	Wesleyan U.
Ms. Elsa Froberg	Graduate Student	U.R.I.
Mr. Thomas Johnston	Graduate Student	U.R.I.
Mr. Jeff Parker	Marine Technician	U.R.I.
Mr. Mark Weishan	Marine Technician	U.R.I.
Ms. Dorothy Hansen	Marine Technician	U.R.I.



Cruise No.: TR-101

Dates: 17 - 29 July 1971

Area of Operation: North Atlantic  
Ocean

Days at sea: 13

Funding: ONR

#### Program Description

The major objective of this cruise was to study the Reykjanes Ridge crest to the southeast tip of Iceland by:

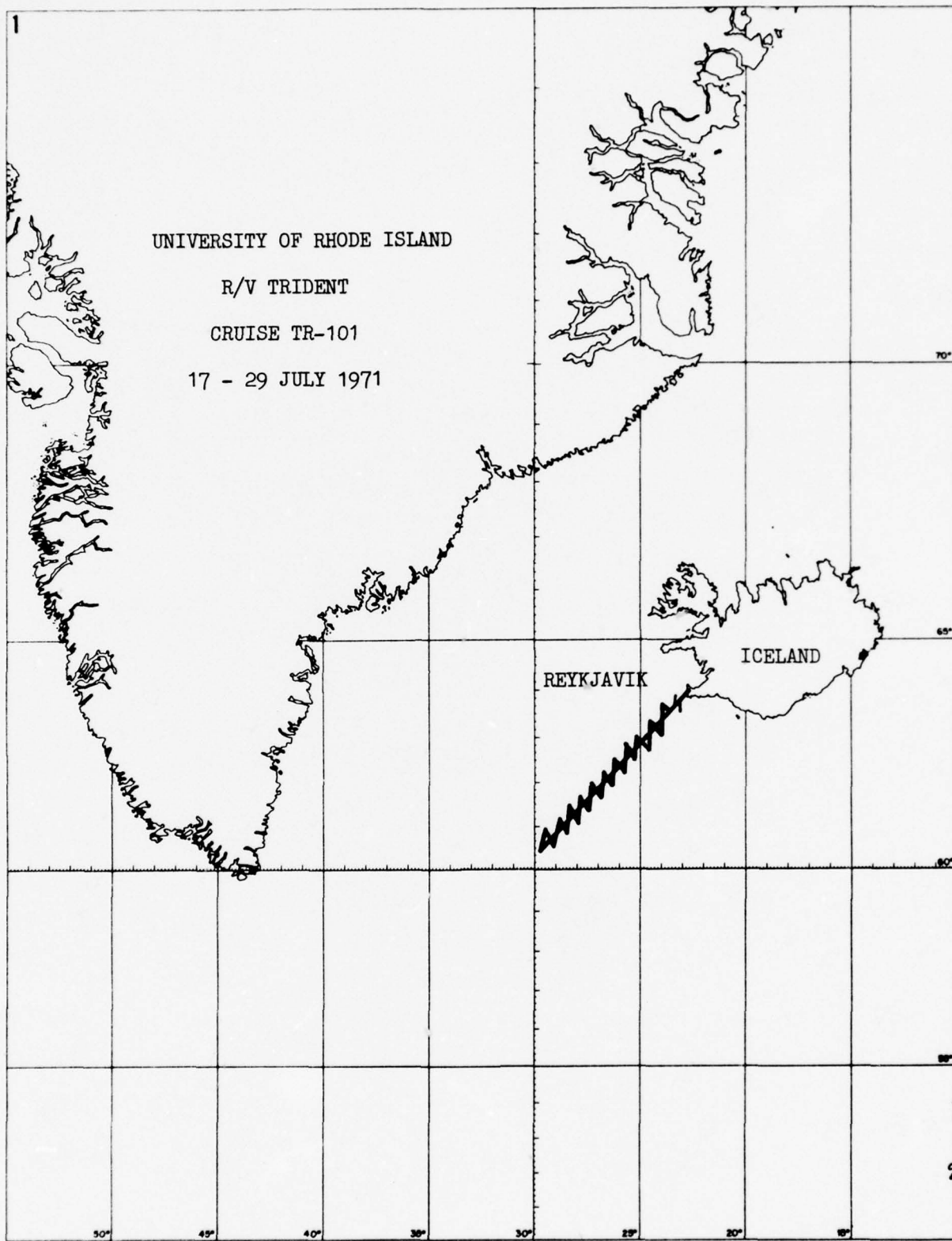
- a) a detailed rock sampling with extensive dredging
- b) a marine geological/geophysical investigation of the ridge crest extension over the southeast Icelandic shelf

#### Data Collected

- 1) 1,500 n.m. of bathymetry and magnetic profiles were run
- 2) 645 n.m. of seismic reflection profiles were taken
- 3) 30 dredges were recovered
- 4) two gravity cores were taken
- 5) three camera stations were occupied

#### Participants

Dr. Jean-Guy Schilling	Chief Scientist	U.R.I.,
Dr. Yoshio Oji	Volcanologist	U.R.I./Japan
Dr. David Gottfried	Geochemist	U.S.G.S.,
Mr. James Cullen	Geologist	Wesleyan U.
Mr. Richard Plumb	Geophysicist	Wesleyan U.
Mr. Sigurdur Steinthorsson	Geologist	Univ. of Iceland
Mr. Kip Barkley	Ocean Engineer	U.R.I.,
Mr. Jeffrey Parker	Marine Technician	U.R.I.,
Mr. Marc Weishan	Marine Technician	U.R.I.,
Mr. Thomas H. Johnston	Graduate Student	U.R.I.,
Ms. Diane Wolf	Graduate Student	U.R.I.,
Ms. Dorothy Hansen	Technician	U.R.I.,



Cruise No.: TR-102

Dates: 2 - 24 August 1971

Area of Operation: North and  
Northwest  
Atlantic Ocean

Days at sea: 21

Funding: ONR  
NSF

### Program Description

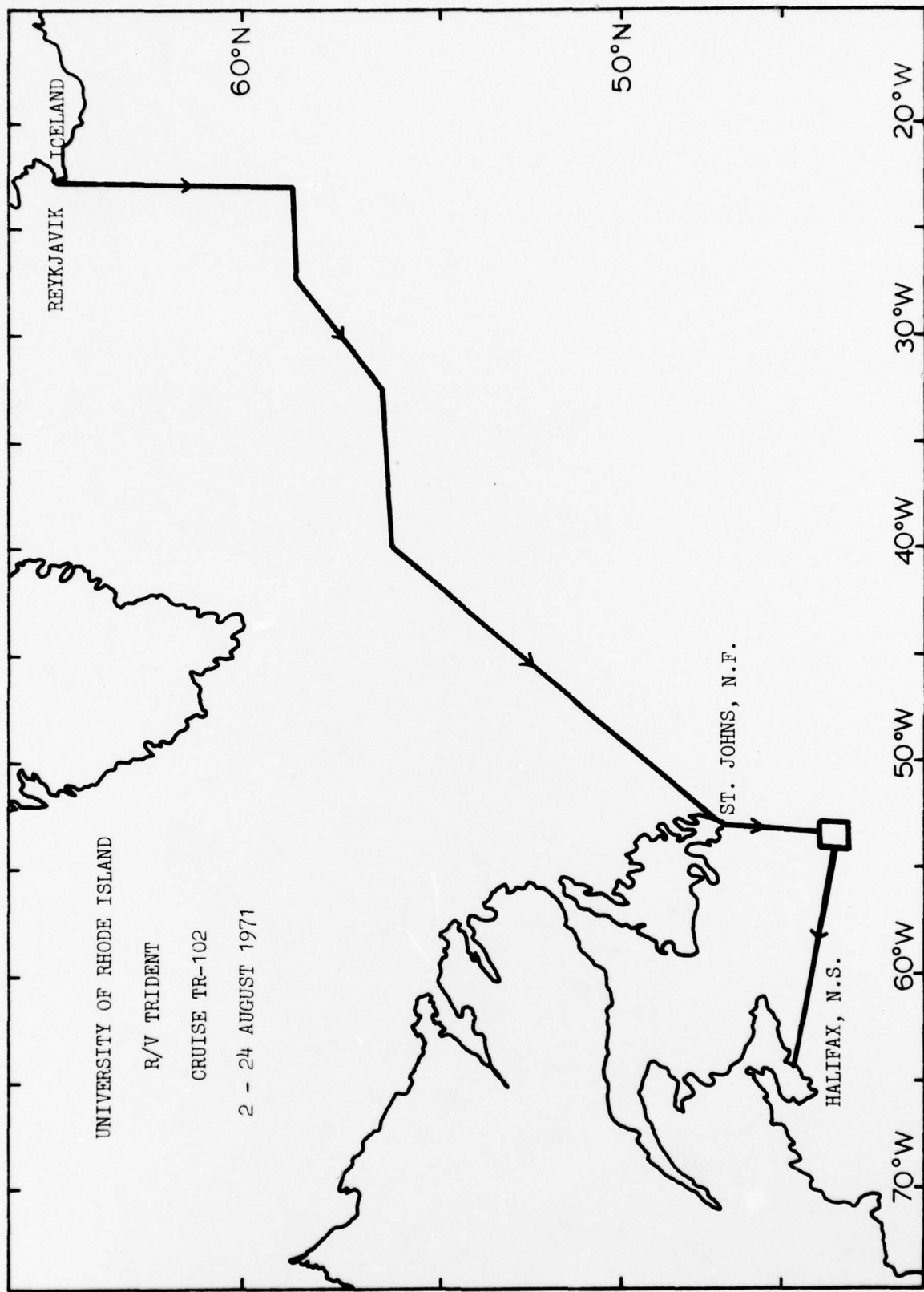
The NORDIC (Northern Oceanic Research on Deep and Interfacial Chemistry) sampling program included hydrographic, STD- $O_2$  and sound speed work. Sea surface film was also collected.

### Data Collected

- 1) 25 hydrographic stations were occupied and water studied for temperature, salinity,  $O_2$ , fluoride, iron and silicates
- 2) 32 STD  $O_2$  and sound speed stations were occupied
- 3) 27 XBTs were taken
- 4) eight sea surface film samples were collected
- 5) atmospheric particulate matter was sampled continuously

### Participants

Dr. Dana R. Kester	Chief Scientist	U.R.I.
Dr. Donald N. Connors	Co-Investigator	NUSC, Newport
Dr. Gerald Hoffman	Co-Investigator	U.R.I.
Dr. Kern E. Kenyon	Co-Investigator	U.R.I.
Dr. Michael E. Q. Pilson	Co-Investigator	U.R.I.
Mr. Kimball Crocker	Oceanographer	NUSC, Newport
Mr. Robert H. Byrne	Research Associate	U.R.I.
Mr. Ken Johnson	Research Associate	U.R.I.
Mr. Gerard Miller	Research Associate	U.R.I.
Mr. Kenneth Mooney	Research Associate	U.R.I.
Mr. David Schultz	Research Associate	U.R.I.
Mr. William Hahn	Sr. Oceanographic Technician	U.R.I.
Ms. Frances Steinhilper	Oceanographic Technician II	U.R.I.



Cruise No.: TR-103

Dates: 26 August - 8 September 1971

Area of Operation: North and North-west Atlantic Ocean

Days at sea: 14

Funding: ONR

#### Program Description

The main objectives of this cruise were to continue whale and porpoise studies by transmitting and recording underwater sounds. A secondary study of locating and recording killer and sperm whales was undertaken.

#### Data Collected

- 1) 30 hours of underwater sound recordings were made
- 2) continuous daylight whale and wildlife observations were made
- 3) sea surface temperature was recorded continuously
- 4) eight XBTs were taken

#### Participants

Dr. Howard E. Winn	Chief Scientist	U.R.I.
Mr. Paul Perkins	Oceanographic Specialist	U.R.I.
Ms. Lois Winn	Special Assistant	U.R.I.
Mr. Richard Edel	Research Assistant	U.R.I.
Mr. Martin Hyman	Research Assistant	U.R.I.
Mr. Jack Schneider	Research Assistant	U.R.I.
Mr. Algis Taruski	Research Assistant	U.R.I.
Mr. Herbert Hays	Graduate Assistant	W. Virginia Univ.
Mr. Louis Rigley	Graduate Assistant	W. Virginia Univ.
Mr. William Hahn	Marine Technician	U.R.I.
Mr. James Griffin	Graduate Student	U.R.I.
Ms. Patricia Taruski	Graduate Student	U.R.I.

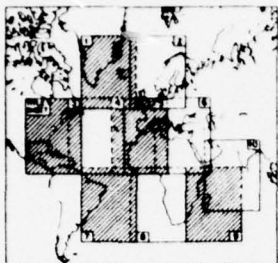
3

N. M. L.

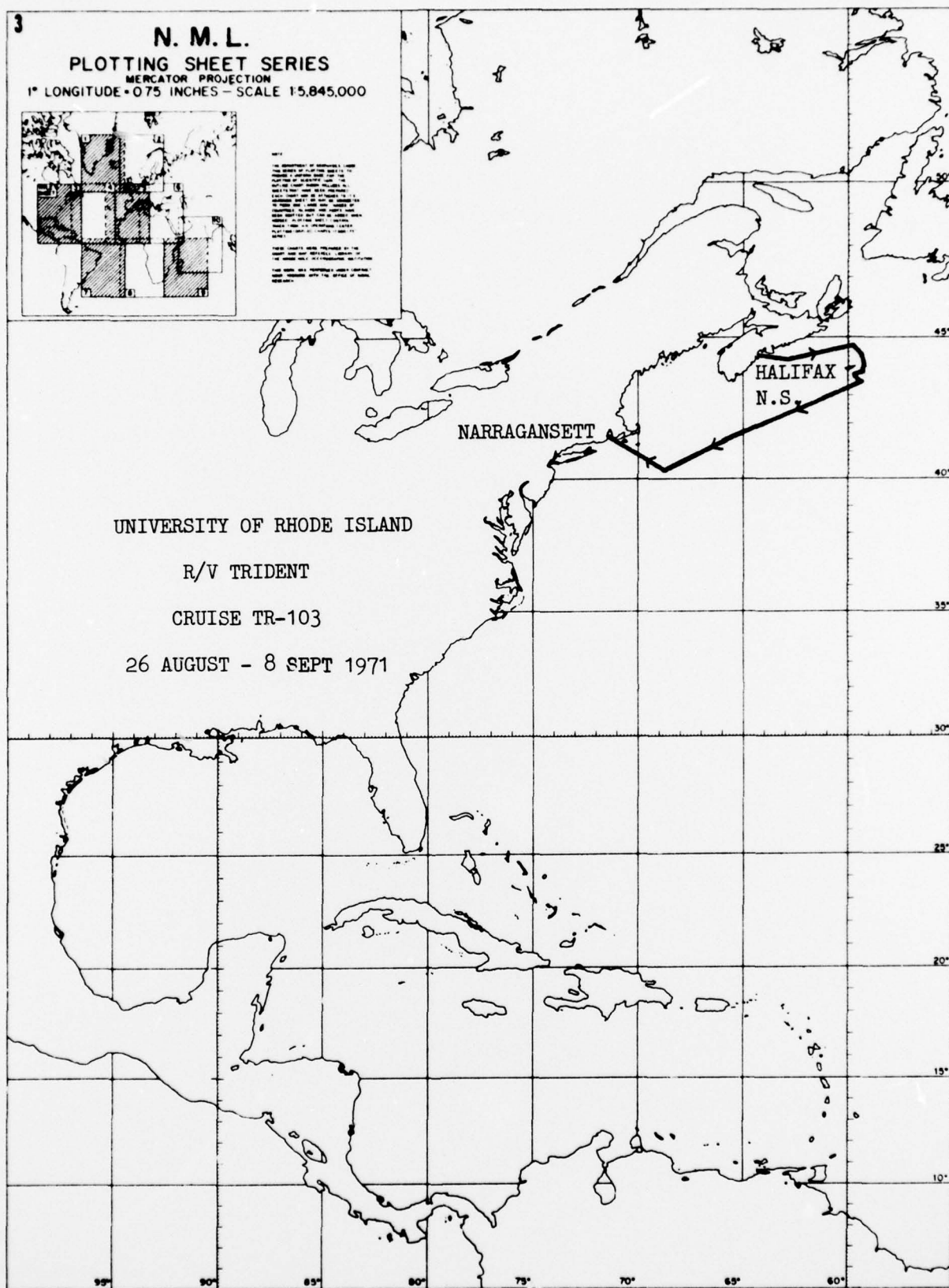
PLOTING SHEET SERIES

MERCATOR PROJECTION

1" LONGITUDE = 0.75 INCHES - SCALE 1:5,845,000



THE INFORMATION ON THIS MAP WAS OBTAINED FROM THE FOLLOWING SOURCES:  
1. U.S. NAVY CHARTS  
2. U.S. AIR FORCE CHARTS  
3. U.S. ARMY CHARTS  
4. U.S. MARINE CORPS CHARTS  
5. U.S. COAST AND GEODETIC SURVEY CHARTS  
6. U.S. GEOLOGICAL SURVEY CHARTS  
7. U.S. AERONAUTICAL CHARTS  
8. U.S. NAUTICAL CHARTS  
9. U.S. MILITARY CHARTS  
10. U.S. CIVILIAN CHARTS  
11. U.S. GOVERNMENT CHARTS  
12. U.S. PRIVATE CHARTS  
13. U.S. FOREIGN CHARTS  
14. U.S. INTERNATIONAL CHARTS  
15. U.S. DOMESTIC CHARTS  
16. U.S. TERRITORIAL CHARTS  
17. U.S. MARITIME CHARTS  
18. U.S. AERIAL CHARTS  
19. U.S. SUBMARINE CHARTS  
20. U.S. SPACE CHARTS  
21. U.S. UNDERSEA CHARTS  
22. U.S. ATMOSPHERIC CHARTS  
23. U.S. COSMOS CHARTS  
24. U.S. GALAXY CHARTS  
25. U.S. UNIVERSE CHARTS



Cruise No.: TR-104

Dates: 17 October - 2 November 1971

Area of Operation: Northwest  
Atlantic Ocean

Days at sea: 17

Funding: ONR  
NSF

#### Program Description

The main purpose of this cruise was to obtain STD-0<sub>2</sub> profiles in the Northwest Atlantic. A cold-core eddy was tracked and current meter arrays were deployed for the pre-MODE (Mid-Ocean Dynamics Experiment) program. Secondary studies of arsenate, isotopes and sargassum biology were made.

#### Data Collected

- 1) 27 STD-0<sub>2</sub> stations were made
- 2) 77 XBTs were taken
- 3) eight hydrographic stations were occupied
- 4) eight arsenate, arsenite-arsenic stations were taken
- 5) three current meter arrays were deployed
- 6) 195 sargassum studies were made
- 7) seismic profiling equipment was tested

#### Participants

Dr. Richard B. Lambert, Jr.	Chief Scientist	U.R.I.
Mr. David L. Johnson	Co-Investigator	U.R.I.
Dr. Stuart Kupferman	Co-Investigator	Univ. of Delaware
Mr. Philip L. Richardson	Co-Investigator	U.R.I.
Dr. Theodore J. Smayda	Co-Investigator	U.R.I.
Mr. Philip Bedard	Electronics Engineer	U.R.I.
Mr. Gary Hitchcock	Research Assistant	U.R.I.
Mr. Carmelo Tomas	Research Assistant	U.R.I.
Mr. Arthur Buddington	Marine Technician	U.R.I.
Mr. Mark Weishan	Marine Technician	U.R.I.
Mr. Edward Weitzner	Marine Technician	U.R.I.
Mr. James Sammons	Electronics Technician	U.R.I.
Ms. Frances Steinhilper	Research Technician	U.R.I.
Mr. Laurence Murphy	Research Technician	Univ. of Delaware
Ms. D. Hansen	Assistant	Narragansett
Mr. Timothy Staley	Assistant	Saunderstown

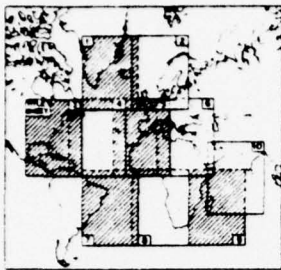
3

N. M. L.

## PLOTting SHEET SERIES

MERCATOR PROJECTION

1" LONGITUDE = 0.75 INCHES - SCALE 1:5,845,000



1. NAME OF VESSEL  
2. NAME OF COMMANDER  
3. NAME OF PILOT  
4. NAME OF OBSERVER  
5. NAME OF SIGHTER  
6. NAME OF TARGET  
7. NAME OF TARGET  
8. NAME OF TARGET  
9. NAME OF TARGET  
10. NAME OF TARGET  
11. NAME OF TARGET  
12. NAME OF TARGET  
13. NAME OF TARGET  
14. NAME OF TARGET  
15. NAME OF TARGET  
16. NAME OF TARGET  
17. NAME OF TARGET  
18. NAME OF TARGET  
19. NAME OF TARGET  
20. NAME OF TARGET  
21. NAME OF TARGET  
22. NAME OF TARGET  
23. NAME OF TARGET  
24. NAME OF TARGET  
25. NAME OF TARGET  
26. NAME OF TARGET  
27. NAME OF TARGET  
28. NAME OF TARGET  
29. NAME OF TARGET  
30. NAME OF TARGET  
31. NAME OF TARGET  
32. NAME OF TARGET  
33. NAME OF TARGET  
34. NAME OF TARGET  
35. NAME OF TARGET  
36. NAME OF TARGET  
37. NAME OF TARGET  
38. NAME OF TARGET  
39. NAME OF TARGET  
40. NAME OF TARGET  
41. NAME OF TARGET  
42. NAME OF TARGET  
43. NAME OF TARGET  
44. NAME OF TARGET  
45. NAME OF TARGET  
46. NAME OF TARGET  
47. NAME OF TARGET  
48. NAME OF TARGET  
49. NAME OF TARGET  
50. NAME OF TARGET  
51. NAME OF TARGET  
52. NAME OF TARGET  
53. NAME OF TARGET  
54. NAME OF TARGET  
55. NAME OF TARGET  
56. NAME OF TARGET  
57. NAME OF TARGET  
58. NAME OF TARGET  
59. NAME OF TARGET  
60. NAME OF TARGET  
61. NAME OF TARGET  
62. NAME OF TARGET  
63. NAME OF TARGET  
64. NAME OF TARGET  
65. NAME OF TARGET  
66. NAME OF TARGET  
67. NAME OF TARGET  
68. NAME OF TARGET  
69. NAME OF TARGET  
70. NAME OF TARGET  
71. NAME OF TARGET  
72. NAME OF TARGET  
73. NAME OF TARGET  
74. NAME OF TARGET  
75. NAME OF TARGET  
76. NAME OF TARGET  
77. NAME OF TARGET  
78. NAME OF TARGET  
79. NAME OF TARGET  
80. NAME OF TARGET  
81. NAME OF TARGET  
82. NAME OF TARGET  
83. NAME OF TARGET  
84. NAME OF TARGET  
85. NAME OF TARGET  
86. NAME OF TARGET  
87. NAME OF TARGET  
88. NAME OF TARGET  
89. NAME OF TARGET  
90. NAME OF TARGET  
91. NAME OF TARGET  
92. NAME OF TARGET  
93. NAME OF TARGET  
94. NAME OF TARGET  
95. NAME OF TARGET  
96. NAME OF TARGET  
97. NAME OF TARGET  
98. NAME OF TARGET  
99. NAME OF TARGET  
100. NAME OF TARGET

NARRAGANSETT

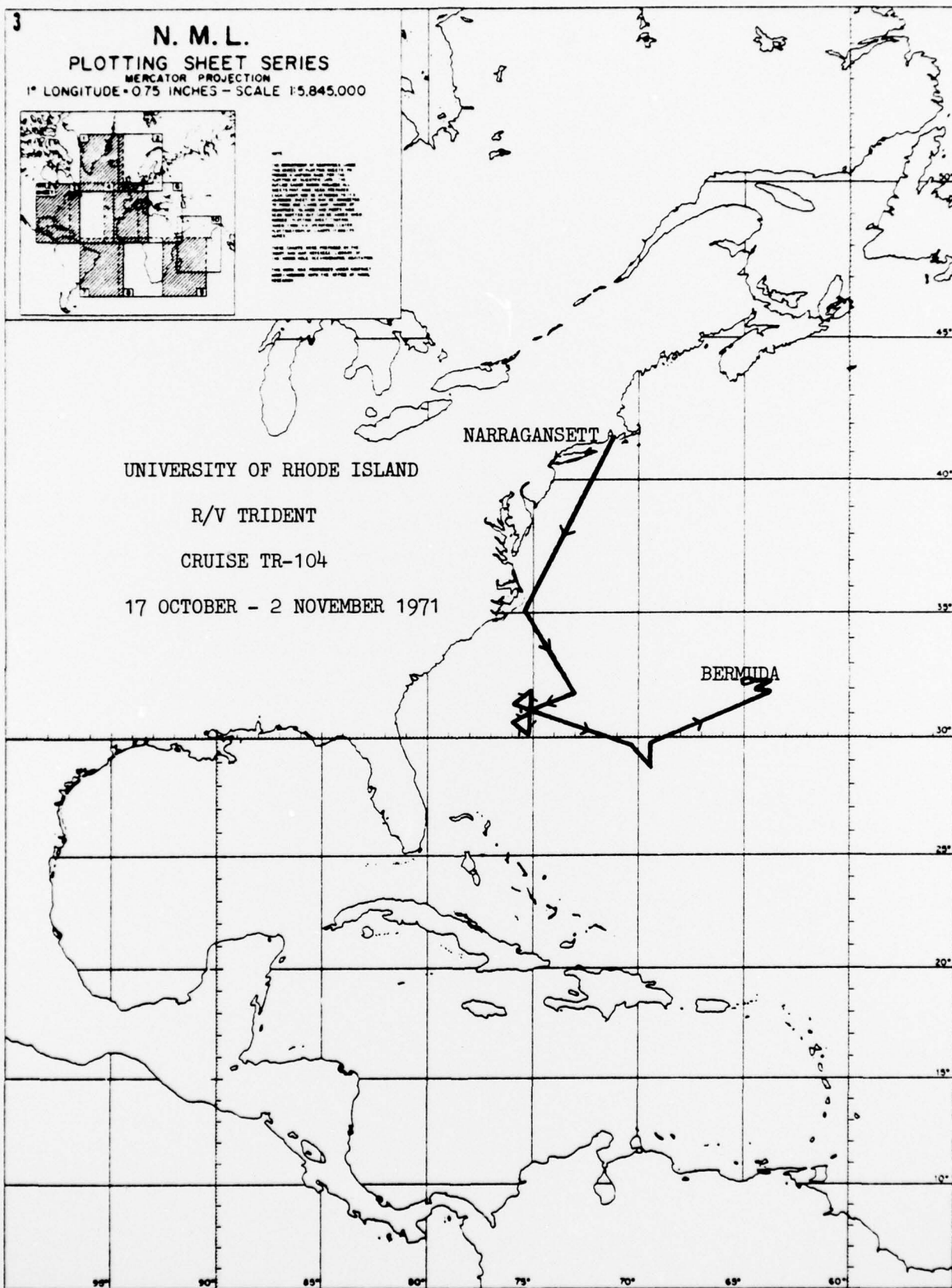
UNIVERSITY OF RHODE ISLAND

R/V TRIDENT

CRUISE TR-104

17 OCTOBER - 2 NOVEMBER 1971

BERMUDA



Cruise No.: TR-105

Dates: 4 - 20 November 1971

Area of Operation: Northwest  
Atlantic Ocean

Days at sea: 17

Funding: NSF

#### Program Description

The main purpose of this cruise was a study of the applicability of density measurements and geostrophic current calculations to mesoscale, short-term water motion in the deep ocean. Current meter arrays are being maintained in the same area for intercomparison.

#### Data Collected

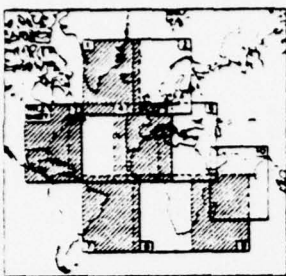
- 1) 51 STD stations were made
- 2) three hydrographic stations were occupied

#### Participants

Dr. Richard Scarlet	Chief Scientist	M.I.T.
Dr. Ants Leetmaa	Scientist	M.I.T.
Mr. Arthur Buddington	Marine Technician	U.R.I.
Mr. Edward Weitzner	Marine Technician	U.R.I.
Mr. Jack Lucas	Marine Technician	S.I.O.
Mr. David Nergaard	Marine Technician	M.I.T.
Mr. William Ackerman	Student	M.I.T.
Ms. Barbara Altenburg	Student	M.I.T.
Mr. James Broda	Student	W.H.O.I.
Ms. Adela Hadiwono	Student	M.I.T.
Mr. Alfred Picardi	Student	M.I.T.
Mr. Stephen Poole	Student	M.I.T.
Ms. Dorothy Hansen	Assistant	W.H.O.I.

3

N. M. L.  
PLOTING SHEET SERIES  
MERCATOR PROJECTION  
1" LONGITUDE = 0.75 INCHES - SCALE 1:5,845,000



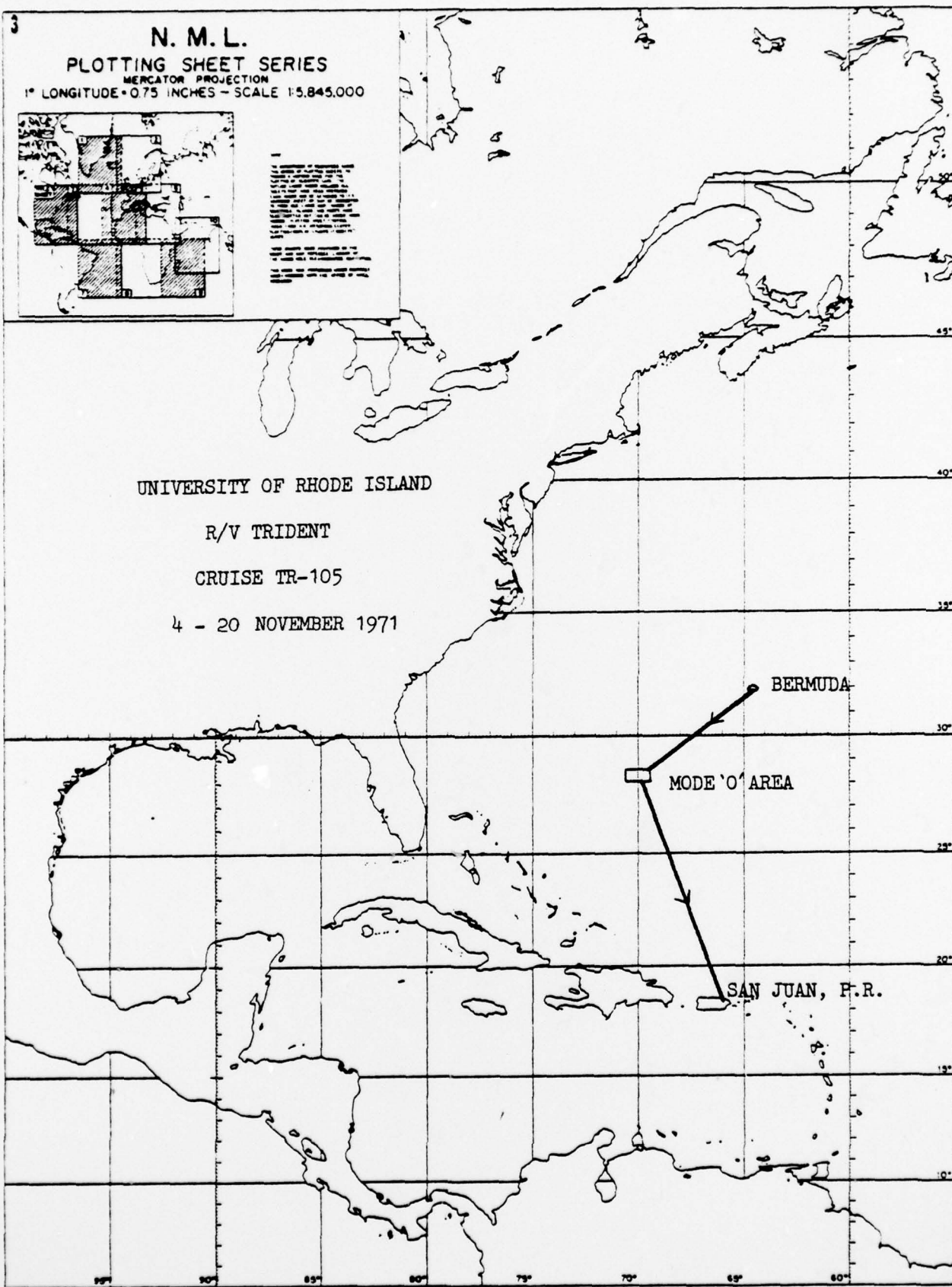
1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60  
61  
62  
63  
64  
65  
66  
67  
68  
69  
70  
71  
72  
73  
74  
75  
76  
77  
78  
79  
80  
81  
82  
83  
84  
85  
86  
87  
88  
89  
90  
91  
92  
93  
94  
95  
96  
97  
98  
99  
100

UNIVERSITY OF RHODE ISLAND

R/V TRIDENT

CRUISE TR-105

4 - 20 NOVEMBER 1971



Cruise No.: TR-106

Dates: 23 - 30 November 1971

Area of Operation: Caribbean Sea

Days at sea: 8

Funding: ONR  
NSF

### Program Description

The main purpose of this cruise was to study the physical structure of the water in the passages north and south of St. Croix, V. I.

### Data Collected

- 1) 32 STD stations were occupied
- 2) 23 XBTs were taken

### Participants

Dr. Richard B. Lambert, Jr.	Chief Scientist	U.R.I.
Dr. S. V. Letcher	Physicist	U.R.I.
Dr. Kim D. Saunders	Oceanographer	M.I.T.
Mrs. Barbara B. Saunders	Chemist	Harvard
Mr. Kimball Crocker	Oceanographer	NUSC, Newport
Mr. John Timar	Ocean Engineer	Univ. of Massachusetts
Mr. R. Cheney	Research Assistant	U.R.I.
Mr. David Evans	Research Assistant	U.R.I.
Mr. Paul Temple	Research Assistant	U.R.I.
Mr. Arthur Buddington	Marine Technician	U.R.I.
Mr. Edward Weitzner	Marine Technician	U.R.I.
Mr. John Harvey	Technician	LDGO
Mr. Julian Hillegas	Technician	LDGO
Mrs. D. Hansen	Assistant	Narragansett

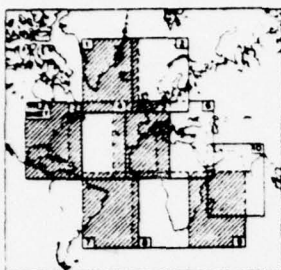
3

N. M. L.

PLOTING SHEET SERIES

MERCATOR PROJECTION

1" LONGITUDE = 0.75 INCHES - SCALE 1:5,845,000



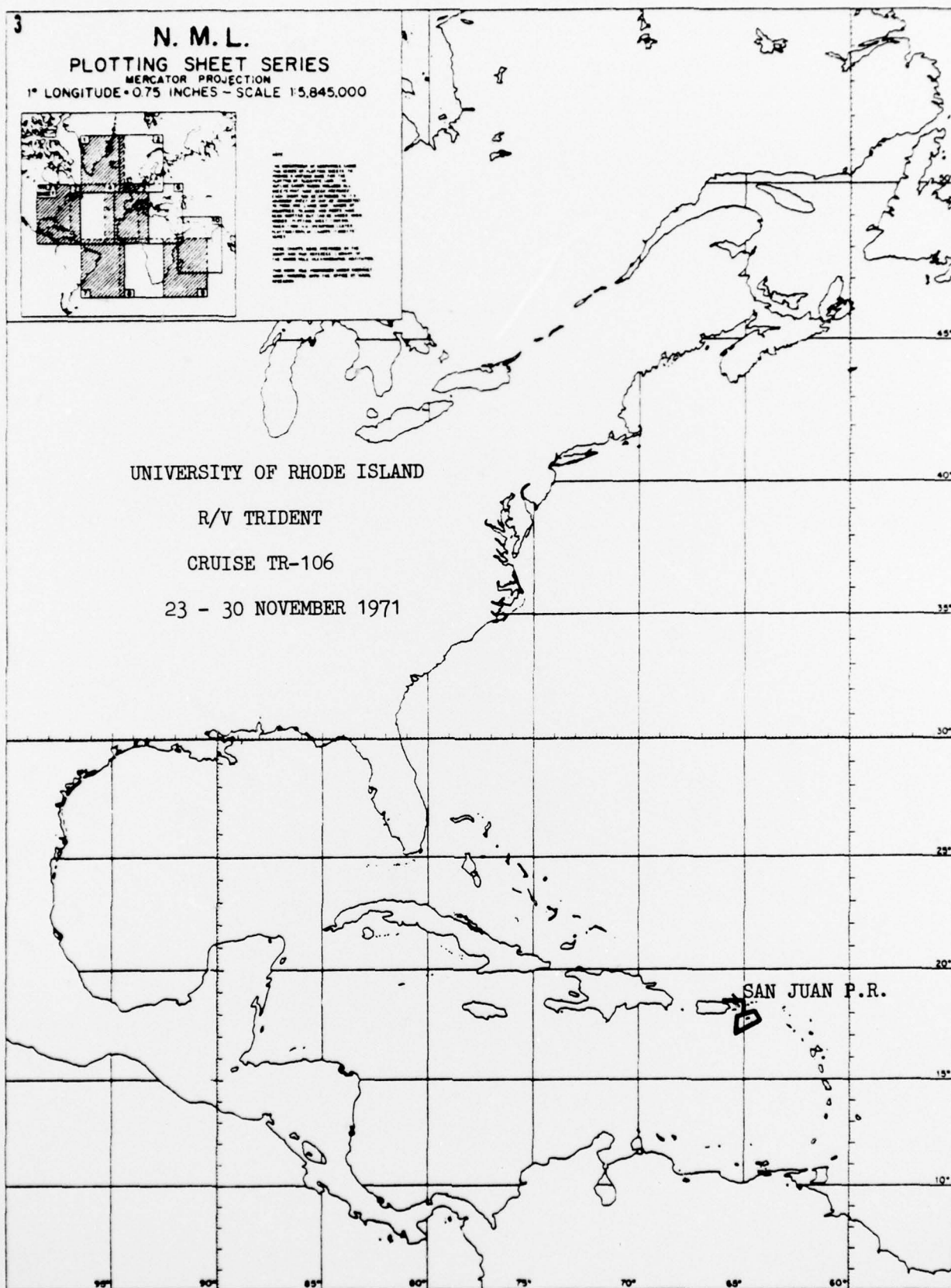
1. Name of vessel  
2. Name of commanding officer  
3. Name of observer  
4. Date  
5. Time of day  
6. Position  
7. Direction of travel  
8. Name of port of origin  
9. Name of port of destination  
10. Name of port of call  
11. Name of port of call  
12. Name of port of call  
13. Name of port of call  
14. Name of port of call  
15. Name of port of call  
16. Name of port of call  
17. Name of port of call  
18. Name of port of call  
19. Name of port of call  
20. Name of port of call  
21. Name of port of call  
22. Name of port of call  
23. Name of port of call  
24. Name of port of call  
25. Name of port of call  
26. Name of port of call  
27. Name of port of call  
28. Name of port of call  
29. Name of port of call  
30. Name of port of call  
31. Name of port of call  
32. Name of port of call  
33. Name of port of call  
34. Name of port of call  
35. Name of port of call  
36. Name of port of call  
37. Name of port of call  
38. Name of port of call  
39. Name of port of call  
40. Name of port of call  
41. Name of port of call  
42. Name of port of call  
43. Name of port of call  
44. Name of port of call  
45. Name of port of call  
46. Name of port of call  
47. Name of port of call  
48. Name of port of call  
49. Name of port of call  
50. Name of port of call  
51. Name of port of call  
52. Name of port of call  
53. Name of port of call  
54. Name of port of call  
55. Name of port of call  
56. Name of port of call  
57. Name of port of call  
58. Name of port of call  
59. Name of port of call  
60. Name of port of call  
61. Name of port of call  
62. Name of port of call  
63. Name of port of call  
64. Name of port of call  
65. Name of port of call  
66. Name of port of call  
67. Name of port of call  
68. Name of port of call  
69. Name of port of call  
70. Name of port of call  
71. Name of port of call  
72. Name of port of call  
73. Name of port of call  
74. Name of port of call  
75. Name of port of call  
76. Name of port of call  
77. Name of port of call  
78. Name of port of call  
79. Name of port of call  
80. Name of port of call  
81. Name of port of call  
82. Name of port of call  
83. Name of port of call  
84. Name of port of call  
85. Name of port of call  
86. Name of port of call  
87. Name of port of call  
88. Name of port of call  
89. Name of port of call  
90. Name of port of call  
91. Name of port of call  
92. Name of port of call  
93. Name of port of call  
94. Name of port of call  
95. Name of port of call  
96. Name of port of call  
97. Name of port of call  
98. Name of port of call  
99. Name of port of call  
100. Name of port of call

UNIVERSITY OF RHODE ISLAND

R/V TRIDENT

CRUISE TR-106

23 - 30 NOVEMBER 1971



Cruise No.: TR-107

Dates: 4 - 15 December 1971

Area of Operation: Northwest  
Atlantic Ocean

Days at sea: 12

Funding: NSF

#### Program Description

The main purpose of this cruise was a study of the applicability of density measurements and geostrophic current calculations to mesoscale, short-term water motion in the deep ocean. Current meter arrays are being maintained in the same area for intercomparison.

#### Data Collected

1) 55 CSTD stations were occupied

#### Participants

Dr. Richard Scarlet	Chief Scientist	M.I.T.
Dr. James McWilliams	Scientist	Harvard
Mr. Arthur Buddington	Marine Technician	U.R.I.
Mr. Edward Weitzner	Marine Technician	U.R.I.
Mr. Jack Lucas	Marine Technician	S.I.O.
Mr. David Nergaard	Marine Technician	M.I.T.
Ms. Lee Dantzler	Student	Johns Hopkins
Ms. Dorothy Hansen	Student	W.H.O.I.
Mr. John Lockwood	Student	W.H.O.I.
Mr. Peter Smith	Student	Nova University



Cruise No.: TR-108

Dates: 17 - 22 December 1971

Area of Operation: Northwest  
Atlantic Ocean

Days at sea: 6

Funding: ONR

#### Program Description

An attempt was made to study Gulf Stream eddies, but several storms reduced over-the-side work to the use of XBTs and net tows.

#### Data Collected

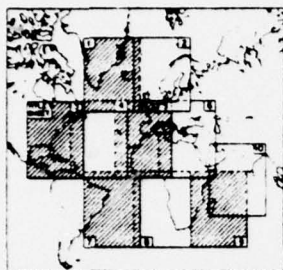
- 1) 62 XBTs were taken across the Gulf Stream
- 2) two net tow stations were made

#### Participants

Dr. Dana R. Kester	Chief Scientist	U.R.I.
Dr. Michael E. Q. Pilson	Co-Investigator	U.R.I.
Dr. Richard Lambert, Jr.	Co-Investigator	U.R.I.
Mr. James F. Holzgraf	Research Technician	U.R.I.
Mr. Edward Weitzner	Marine Technician	U.R.I.
Mr. Elanijikal Chacko	Student	Univ. of Massachusetts
Mr. Carl Fonteneau	Student	U.R.I.
Mr. Kevin Kelly	Former Student	U.R.I.
Mr. John Patton	Student	U.R.I.

3

N. M. L.  
PLOTING SHEET SERIES  
MERCATOR PROJECTION  
1" LONGITUDE = 0.75 INCHES - SCALE 1:5,845,000



1. Symbols for surface and subsurface currents, wind, and weather are given in the following tables. The symbols for surface currents are given in the first column, and the symbols for subsurface currents are given in the second column. The symbols for wind are given in the third column, and the symbols for weather are given in the fourth column.

2. The symbols for surface and subsurface currents are given in the following tables. The symbols for surface currents are given in the first column, and the symbols for subsurface currents are given in the second column. The symbols for wind are given in the third column, and the symbols for weather are given in the fourth column.

3. The symbols for surface and subsurface currents are given in the following tables. The symbols for surface currents are given in the first column, and the symbols for subsurface currents are given in the second column. The symbols for wind are given in the third column, and the symbols for weather are given in the fourth column.

UNIVERSITY OF RHODE ISLAND

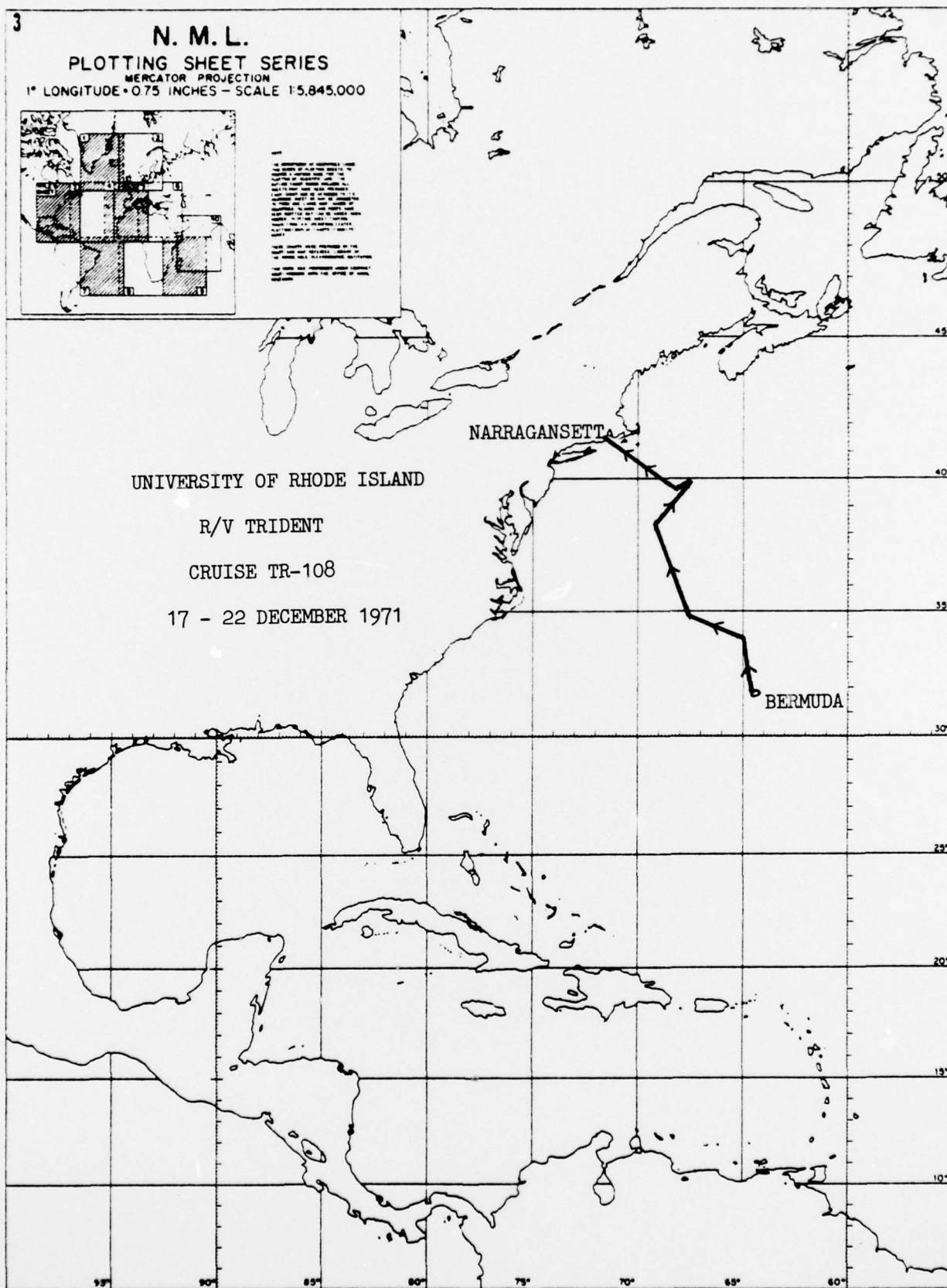
R/V TRIDENT

CRUISE TR-108

17 - 22 DECEMBER 1971

NARRAGANSETTA

BERMUDA



MANDATORY DISTRIBUTION LIST

FOR UNCLASSIFIED TECHNICAL REPORTS, REPRINTS & FINAL REPORTS  
PUBLISHED BY OCEANOGRAPHIC CONTRACTORS  
OF THE OCEAN SCIENCE AND TECHNOLOGY DIVISION  
OF THE OFFICE OF NAVAL RESEARCH  
(Revised Oct. 1976)

1	Director of Defense Research and Engineering Office of the Secretary of Defense Washington, D.C. 20301 ATTN: Office Assistant Director (Research)	12	Defense Documentation Center Cameron Station Alexandria, Virginia 22314
	Office of Naval Research Arlington, Virginia 22217		Commander Naval Oceanographic Office Washington, D.C. 20390
1	ATTN: (Code 460)	1	ATTN: Code 1640
1	ATTN: (Code 102-OS)	1	ATTN: Code 70
6	ATTN: (Code 102IP)		
1	ATTN: (Code 200)	3	Ocean Research Office Naval Ocean Research and Development Activity National Space Technology Laboratories Code 400 Bay St. Louis, Mississippi 39520
1	CDR John Harlett ONR Representative Woods Hole Oceanographic Inst. Woods Hole, Massachusetts 02543		
1	Office of Naval Research Branch Office 495 Summer Street Boston, Massachusetts 02210		
	Director Naval Research Laboratory Washington, D.C. 20375		
6	ATTN: Library, Code 2620		
1	National Oceanographic Data Center National Oceanic & Atmospheric Administration Rockville, Maryland 20852		